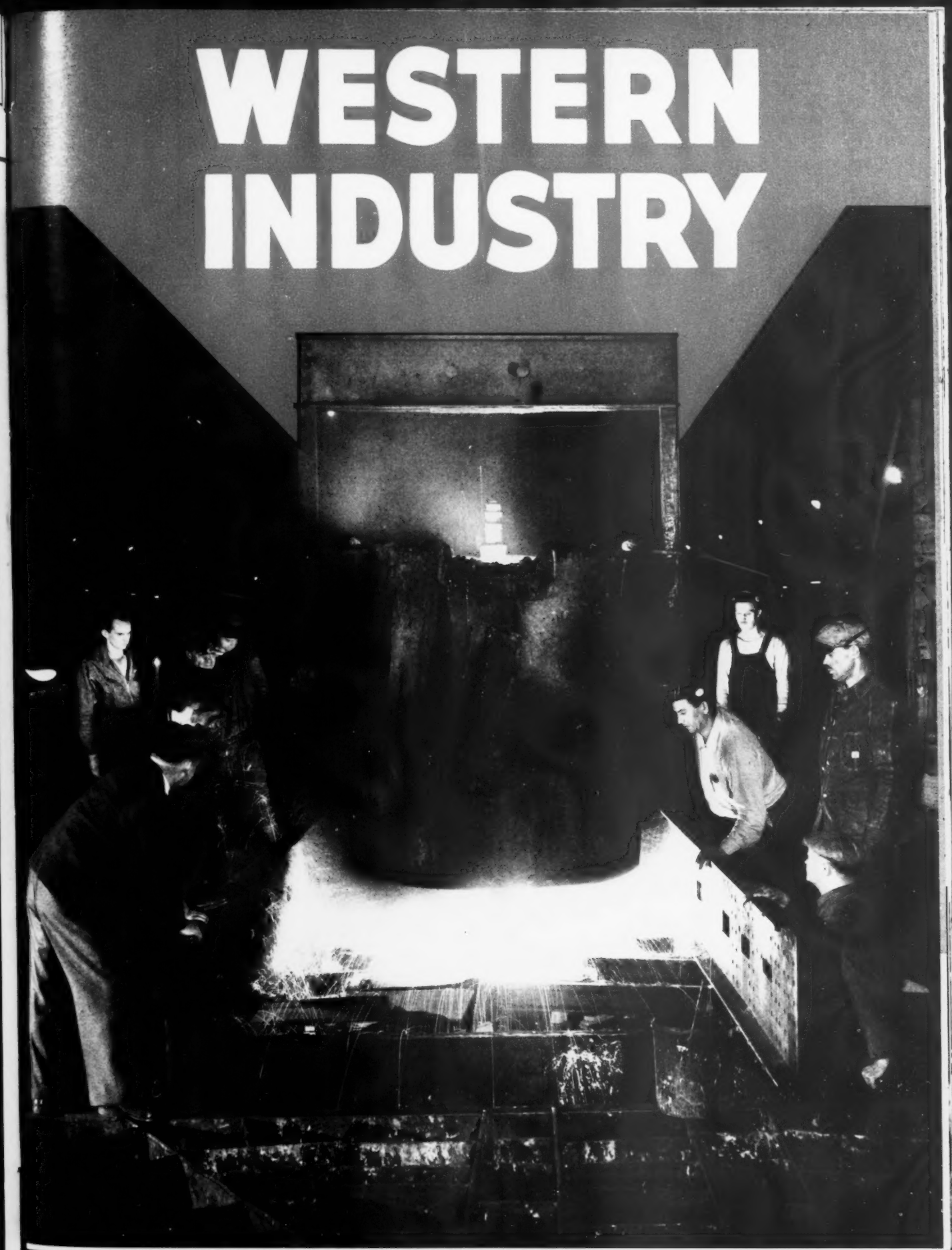
WESTERN INDUSTRY



Twenty-Five Cents

November 1942

ENLISTED UNTIL VICTORY

WHERE would modern War Production be without hand or machine cutting torches?

The greatest shipbuilders of America are utilizing VICTOR Hand and Machine Cutting Torches because they have proved themselves of longer service life and of greater cutting ability.

VICTOR is proud that 100% of its products are engaged in Victory Production.

VICTOR EQUIPMENT COMPANY

844 FOLSOM STREET ★ ★ SAN FRANCISCO

Twenty-Five Cents November 1942

WHAT'S NEW with the Editor...

Rome Radios

WHEN a government radio announcer in Rome recently told the Italian people that the latest figment of the American imagination was the story of the launching of a big cargo ship in ten days, he drew more laughs in this country than Jack Benny. On the strength of this announcer's reassurance to his listeners that the Americans were trying to win the war with tall stories, perhaps the "Joseph N. Teal" should have its name changed to "I Don't Exist," or "There Ain't No Such Ship."

Sounds ludicrous, doesn't it? But have we any such announcers in this country? We recall that when the party of newspaper women recently toured the nation's largest war industry plants, one of them asked a leading Ford Motor Company official what name would be given the big bombers that are to be built at Willow Run. He replied that it would be "Kindelberger," because of some disparaging remarks made by the distinguished president of one of the aircraft companies about the likelihood of the Ford effort being successful.

Also, remember how Kaiser's idea of big cargo planes was resisted, but finally the existing manufacturers announced they could build such craft themselves?

Then there are some publications in the iron and steel industry that are going to great lengths to prove to their readers how sponge iron is a totally impractical substitute for scrap iron in making steel. *Western Industry* holds no brief for sponge iron, in fact we gave our readers a careful analysis of its possibilities in the September issue, pointing out that in ordinary times it could not be considered practical but under war conditions might be a stop-gap.

But at a time when every household in the country is being ransacked for the last ounce of old metal that can be spared, to find so-called leaders in the metal publication field making such frantic efforts to head off the pilot plants for sponge iron now being established by the U. S. Bureau of Mines is rather surprising, to put it mildly—and charitably.

Co-ordinating the Co-ordinators

ADVERTISING is an industry that has not wasted much time trying to argue about how essential it is to the war effort. Instead, its members have buckled right down to the task of transmitting ideas on how to get a bigger war output and how to keep up morale. Some of the advertising copy, such as that portraying the worker in the production line of a factory as being a "soldier of production" has been almost Lincolnesque in its simple and ringing sincerity and its rousing effect.

Now the advertising men are going to apply to their own efforts the pooling of production methods and efficiency that has been so successful in manufacturing operations. The accelerated shifting of personnel, the entrance of manufacturers into lines not even remotely associated with their normal products and the many internal wartime promotion needs have brought new problems to management and advertising men. Many successful programs have been conducted—some others failed to click, and the National Industrial Advertisers Association has worked out a Victory Promotions Plan to exchange information for the benefit of all participants. Its four divisions are: war production promotions (including plant posters, production drives, contests, suggestion boxes, house organs, etc.), industrial training, war-winning advertising and conservation and scrap salvage. The Northern California chapter of this association is concentrating particularly on building production morale. Yes, it still pays to advertise.

WESTERN INDUSTRY

The Journal of Western Development

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OUR COVER PICTURE

A 13½-ton casting for a shipyard forming press was poured in Seattle late in September, one of the largest electric casting jobs on record in the Pacific Northwest. Less than a month later the finished press was installed and in operation. (Story on page 7.)

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Beans to Bullets...

Another example of the broad container uses for Cabco All-Bound Boxes and Crates

The old saying, "Everything from beans to bullets," could have well originated with a Cabco All-Bound Crate in mind! From California's fog ridden lima bean belt to a smoke ridden munitions factory, today's food and material of victory are on the march in Cabco All-Bound Boxes and Crates!

Two important reasons account for this increasing use of Cabco All-Bound Boxes and Crates: first, they *save time* and man-hours and money; second, they *conserve materials* because All-Bounds give adequate strength and protection with much less wood than other types of wooden boxes.

So today, when time and materials are the essence, consider the advantages of shipping the Cabco Way! Speed-up your war effort . . . make your shipping more efficient, more economical, more profitable. Get the facts on how Cabco All-Bound Boxes and Crates can help you. Consult with Cabco container engineers and designers, no obligation of course!

Help win the war...
Save time and trees!

CALIFORNIA BARREL COMPANY, LTD.

General Offices
100 BUSH STREET
SALT LAKE CITY SAN FRANCISCO LOS ANGELES

Spotlight on the NEWS

WESTERN INDUSTRY
FOR NOVEMBER, 1942

VOLUME VII NUMBER 11

Western Steel and Iron Plants, Constructed Now, Will Be Producing Full Blast in Spring

A $26,000,000 addition to the Kaiser steel plant facilities at Fontana, California, to increase production by 225,000 tons of steel ingots or 158,000 tons of finished products, has been approved by the War Production Board.

The facilities to be added include two open-hearth furnaces with a charge capacity of 185 tons each—a 28-inch structural mill fed by a 36-inch breakdown mill—a merchant and bar mill—alloy finishing facilities—and slow cooling pits for ingots.

Ingots of standard sizes and shapes of approximately 5,000 pounds to 12,000 pounds each will be produced. The announced expansion includes a further extension of ingot mould-making capacity.

Production of the mill now being built at Fontana will consist entirely of steel plates. When the added facilities are in operation, the Kaiser Company will be producing, in addition, structural shapes and some amounts of other carbon steel products.

The first material increase in Utah pig iron production is expected to come next month, when a second blast furnace now being installed for the Defense Plant Corporation at Columbia Steel Company's Ironton Works, near Provo, goes into operation. This furnace, inoperative at Joliet, Ill., for several years, was recently shipped to Ironton.

By next April pig iron is scheduled for production at the $150,000,000 Geneva Works, where more than 8,000 men are now employed in construction operations. This plant is being built for Defense Plant Corporation by Columbia, which is a subsidiary of United States Steel Corporation. On account of the housing shortage in the area, ten barracks housing 100 men each have been built and 20 more units are under construction.

Actual production of steel is expected to commence in May, when the first open-hearth furnace will be completed and lighted. Additional open-hearth furnaces will be in operation shortly thereafter. The structural mill will be in operation by June, as will the slabbing mill, and steel plates for shipbuilding will be rolling off the plate mill by June.

Facilities for increased production of iron ore at Iron Mountain, Utah, have also been completed by Columbia Steel Co.

25 Tons of Tin Shipped

A 25-ton shipment of tin ore from the Evening Star Mine near Cima, San Bernardino County, California, is the first recorded from California in 14 years. The ore was consigned to the Tin Processing Corporation, a federal agency, in Texas City, Texas, where Bolivian tin is being smelted for various industrial purposes.

77 New Factories in L. A.

Investment in new industrial plants and expansion of existing ones in Los Angeles county during the first three quarters of 1942 totaled $77,600,000, with jobs created for 100,000 workers, according to the Los Angeles County Chamber of Commerce.

Construction was started on 77 new factories costing $47,300,000, Joseph E. Mayl, chairman of the chamber's industrial development committee, said, while expenditures of $30,300,000 were announced for expansions at 286 plants.

These include synthetic rubber, welding rods suitable for shipyard use, jeweled

• To gear departments together, Iron Fireman in Portland has weekly meetings of foremen. Wednesday afternoon gang: (from left) Herman Reisbick, Phillip McGuire, Al Bowman, Clifford Ketcham (conference leader), Milton Polk, Norman Nicholson, John Larson, Roy Burke, Ed La Fortune, Paul Harms, A. A. Schwerin, Hugh Travers

Made to help cut the Hide off Hitler!

. . . STANDARD OF CALIFORNIA OFFERS A FULL LINE OF CUTTING OILS

These new Cutting Oils are marketed under the famous brand name, CALOL

CALOL

REG. U. S. PAT. OFF.

NOW, when *you must have the best* to speed war production, remember: there's a Calol Cutting Oil for every purpose. They're tailor-made to help *any kind of machines* you operate do their part to beat the Axis. There are types specially designed for tough steels, mild steels, alloy steels, and non-ferrous metals. These new Standard of California products offer the same high level of performance you've always found in other Calol oils. Call your supplier about Calol Cutting Oils now.

STANDARD OF CALIFORNIA

Spotlight on the NEWS

bearings for army and navy instruments, tungsten carbide cutting tools, forge plant, paperboard, optical instruments, lenses, vitamins from fish oil, and airplane parts.

Airplane factories and their affiliates making airplane parts take first place in expansions. Others include plants to make aluminum tubing, screw machine products, tools, uniform caps, salesbooks, gears, food products, high-octane gasoline, open hearth steel, and steel, brass and magnesium castings.

A compilation of the first woodworking industrial directory in that territory revealed Los Angeles county ranks near the top among great woodworking industrial areas of the nation, according to the Los Angeles County Chamber of Commerce.

Permanent Portland Base

Twelve acres of land for a marine railway which will be the biggest side haul in the United States. This $1,500,000 job is a permanent installation which will make Portland a repair base for both naval and commercial vessels, and probably, will insure that city of remaining a naval operating base after the war.

Designed by the Crandall Engineering Company, Boston, Mass., the railway is under construction at Commercial Iron Works. It consists of 12 sets of tracks on which a cradle travels on slopes which extend under water to a depth of 35 feet. A vessel to be floated over it would be centered on keel blocks.

Largest Casting Job

Fabrication of a hull plate forming press, from the pouring of its 13½-ton casting to the annealing, machining and setting up, has been performed in Seattle in approximately one-eighth the time that would have been required for delivery of the press under present conditions had it been ordered in the East.

The job represented one of the largest electric steel casting operations ever attempted in the Pacific Northwest and the Cunningham Steel Foundry of Seattle, undertook its completion with the assistance of three other Seattle firms. It was a story of competitors cooperating on wartime emergency production.

The Cunningham foundry melted 27,000 pounds of steel required for the casting late last September and it was poured from a 15-ton ladle loaned for the job by the Northwest Steel Rolling Mills. Seattle-Tacoma Shipbuilding Corporation handled the annealing because Cunningham's annealing furnace wasn't large enough, and the Johnson Manufacturing Co., machined the casting. Result, the shipyard had its forming press within 30 days from the time the job was started.

Leading up to the job was the breakdown of the press used at the Lake Washington Shipyards for forming and shaping plates for hulls for ships of the Navy. The yard needed a replacement quickly and got it. Eight or nine months' time would have been required had the press been made in the East, according to L. R. McCullough, superintendent of the Cunningham plant.

Foundry details incident to the casting of the huge steel press included the pouring heat at 2,925 degrees Fahrenheit; tensile strength, 84,300 pounds per square inch; yield, 48,700 pounds; elongation, 23 per cent in 2 inches; reduction of area, 39.8 per cent.

Coast Yards Speediest

Pacific Coast shipyards building Liberty ships turned them out in an average time of 61.9 days in September, where the average for Atlantic and Gulf yards was 108.1 days.

Oregon Shipbuilding Corporation, in whose Portland yard the ten-day Joseph N. Teal was constructed, continued to set the pace for American shipbuilders by delivering 11 ships in the average time of 42 days. California Shipbuilding Corporation of Wilmington, Calif., ran second with 12 ships delivered in an average of 55.9 days.

The complete record for September for the 10 Liberty shipyards now in production follows:

Rank	Yard	No. of Ships	Avg. No. of Days, Keel to Delivery
1	Oregon Shipbuilding Corp. (Kaiser) Portland, Ore.	11	42.0
2	California Shipbuilding Corp. (McCone-Bechtel) Wilmington, California	12	55.9
3	Bethlehem-Fairfield Shipyard, Inc. (Bethlehem) Baltimore, Maryland	12	56.4
4	Permanente Metals Corp. (Kaiser) Yard No. 2 Richmond, California	8	57.6
5	North Carolina Shipbldg. Co. Wilmington, No. Carolina	5	76.6
6	Permanente Metals Corp. (Kaiser) Yard No. 1 Richmond, California	6	92.0
7	Houston Shipbuilding Corp. Houston, Texas	5	95.0
8	Alabama Dry Dock & Shipbuilding Co. Mobile, Alabama	2	97.5
9	Delta Shipbldg. Co., Inc. New Orleans, Louisiana	5	125.0
10	South Portland Shipbldg. Corp. South Portland, Maine	1	198.0

• "Back in '85, when I was in the Canadian militia," says Bill Harrison, 76-year-old welder at the Clayton Manufacturing Co. of Alhambra, Calif., to Mrs. Lois Butcher, "the way we beat the Indians was to get organized, and that's the way we'll win this war, too. My pension can wait until the job is done. See how I do it, Lois?"

• An ever-growing mass of cars and no system for handling them was the situation at the outset

TRAFFIC—Lockheed-Vega's Solution

If You Have a Rose Bowl Crowd of Cars Three Times a Day, Go Clear to The Bottom of the Problem and Then Build Up a Really Systematic Plan

Where an enormous population increase has taxed existing transportation and traffic facilities to the breaking point and they cannot be expanded, CO-OPERATION, in capital letters, among all groups and individuals involved, can help to ease the problem. Lockheed-Vega Corporation and the City of Burbank worked wonders. Here's the story as it was given to WESTERN INDUSTRY by L. H. Harrison, traffic engineer of Lockheed-Vega Corporation, who for years handled Rose Bowl football game traffic.

PICTURE the traffic pile-up that follows the Rose Bowl football game, or the biggest football game in your locality, if you haven't been to Pasadena on New Year's Day. Then you will have a fair idea of the traffic problem that confronts the Lockheed and Vega aircraft plants at Burbank each time in the 24 hours there is a change of shift.

To tackle such a problem intelligently, Mr. Harrison says that you have to start with the facts, and see where you stand. To do that, Lockheed-Vega appointed Robert C. Storment, until then its personnel procurement head, to a position as Manager of Employee Transportation.

So thorough a job did Mr. Storment do that he was soon named chairman of the Transportation Committee of the Aircraft War Production Council and assigned the important task of organizing and coordinating the transportation problems of all the aircraft plants in Southern California.

Storment and his staff of statisticians found that 91.6 per cent of Lockheed and Vega employees (since reduced to 83.8 per cent as the result of encouraging other means of transportation) depended on automobiles. Of these, 56.9 per cent drove their own cars and 34.7 per cent rode with them. Those riding street cars or busses accounted for 3.4 per cent; those riding bicycles or motor scooters, .7 per cent; and the remaining employees apparently were lucky enough to live sufficiently close so they could walk.

It was estimated at the time of the original survey that 60 per cent of their employees would always have to be transported in automobiles because they live so far away, and in other mass-production factories, the proportion also was slated to be big.

At the present writing Mr. Storment was launched upon another survey in connection with gasoline rationing, a governmental edict which is certain to change all these percentage figures considerably, and which made it more imperative than ever to see how much you can increase the "man-miles per pound of rubber."

The check conducted by Mr. Storment reveals that car occupancy is, or at that time was, 1.61 person per car. You set up a goal of four persons per car. One department gets up to 3.7, which isn't bad. The plant average jumps to 2.4, which is progress,

but it can be pushed higher if that 3.7 figure was reached throughout one plant.

The thing to do is to make a game of this and cooperate with the employees. It isn't a bad idea for them from a financial and a rubber standpoint, but you do have to work out a fair plan on "cost-sharing" and you should give advice on insurance for the driver and the car. Otherwise, problems may present themselves that will not work out fairly for him. After this basic feature is handled, you do these things:

1. Create file of car owners.
2. Create "Ride Offered" and "Ride Wanted" bulletin boards and columns in your plant newspaper, if you have one.
3. Arrange for driver and occupant to meet.
4. Give preferential parking to full cars.

Mass transportation can be developed further, but private street car or bus companies are in a poor position to launch new lines that may not work out, so you may find it advisable to "guarantee" the line for a period.

Bicycles would be fine for many nearby workers. So you arrange to buy 4,000, give them good bicycle stands near the plant, and see that their bicycles are protected by a guard.

Members of your "Riding Club" offer to ride their horses to work. You don't laugh at them for thinking about "riding to work on a horse to make an airplane." No, you encourage these people who are trying to help.

You don't forget that old, old method of getting around—on foot. It's not a big factor, because there aren't many homes nearby. However, you keep a list of all nearby homes available so that plant employees will know about them.

And now to traffic, with its many delays, ruffled tempers, dented fenders and worse—the old story of the Rose Bowl game over again. This was Mr. Harrison's problem, to solve for Lockheed and Vega just as he had solved it for Pasadena. So, many of the Rose Bowl remedies were applied.

First, since you can't have wider streets to carry the traffic, off-street parking will accomplish the same purpose to a considerable extent.

Second, to avoid traffic jams coming out of parking lots, it was provided that cars entering from a certain street would have to move out on a specified street. Employees were furnished with diagrams before each new lot was opened.

Third, to cut down the criss-crossing of cars, a long-time program was launched to get the workers to park in the lot closest to their homes, instead of in the lot closest to their work. This lightened the load at important intersections, and saved a little mileage, rubber and time. These are no small factors when you consider that the average Lockheed-Vega employee travels 10.3 miles to work in an average time of 33.9 minutes, which means 20.6 miles per day and 67.8 minutes that traffic facilities are being used.

Lockheed-Vega was getting its own house in order before help was asked from city officials on "trouble spots." Burbank police know these spots from accident records, and they are anxious to help.

Even with off-street parking, a few will park on the street unless the law says you can't. Thus, a law becomes necessary. One-way streets help to solve the problem. In some areas it may be an inexpensive matter to cut through a street that will keep a few cars off heavy traffic arterials.

Unfortunately, the best traffic plan in the world doesn't seem to work by itself when you have bad intersections. It's not that people want to be rude, but they do want to get home, and, by golly, they're going to get home.

Traffic signals help, but the right kind of an officer at the crossroads during those all-important hours of the day can work wonders. Lockheed-Vega loaned some of its guards to assist. They were trained as traffic officers and given authority by the city, but they don't use it unless it really becomes necessary. In some localities, the problem may be so large that county and even state officials can help.

Now that the broad general program is

• These two scenes reveal how proper organization of the employee parking areas with wide aisles and systematic routing of the traffic facilitated prompt movement of thousands of cars

• Before: heavy uncontrolled foot traffic crossing this road, parked cars, parallel railroad track and a bad junction

• After: fence with gates controls foot traffic, parking is eliminated, general visibility increased and accidents drop

ready, it must be sold to the employees. "You can get home more quickly and more safely if you take it easy," is the message. Lockheed-Vega and Burbank officials also publicize the plan to reach residents of the area concerned, for they are a part of the traffic flow. The spirit of cooperation strikes the people's fancy, and local civic groups, such as parent-teachers, lend a hand.

As everyone gets to thinking in terms of traffic movement and safety, new ideas come out. One shift change comes at a time when many school children are on the street. Maybe we can move the school hour back a little and move the shift-change forward a bit. It works out successfully, and the bond of friendship is strengthened a little more. Ideas on better street lighting evolve, a big factor in reducing night accidents. White lines for traffic lanes appear. Everybody wants to help, and it's no trick at all to get things done.

Lockheed-Vega employees also are offering good suggestions, such as more gates, or moving to a different plant where the parking lot is in the direction of home. Sometimes the employees themselves handle a problem, like that of the late arrivals who park their cars where they block the exit of several others.

In the latter situation, the members of the Lockheed-Vega family are just like every other family. They are polite for the first few times and leave notes. But when the car is in the same place more than three times, diplomacy is relegated to the background and the damaged fender record, which had dropped from 12 out of 15 cars in the parking lots to 7 out of 15, suddenly seems to jump up again as the result of unexplainable accidents to this one car. It is understood that the treatment rarely has to be repeated, and offenders like this are rare to begin with.

Employees used to buy old jalopies to drive to work, because they didn't know what would happen, but now many of them drive their better cars. Because a friendly spirit is appreciated all round, Lockheed-Vega has found little ways to be of service, such as saving the time of each car owner by arranging for distribution of license plates in the plant.

• (1) An important intersection in first of its three stages (shown just below), mud and all

• (2) No mud, but single lanes across a railroad, with congestion and accident hazard, accompanied by bad delays during peak hours

• (3) Improved, signalized street traffic condition, marked by a great volume of cars making reasonable speed and handled with less danger

• New method of shrinking compared on ⅜" galvanized plate with old way (shown by dark circles) by Bill Moore, who developed the idea for Albina on their sub-chaser construction

SHRINKING—Without Fumes or Burning

A METHOD of shrinking galvanized metal plates without burning, and which does away entirely with deadly fumes, has been developed at Albina Engine and Machine Works, Portland, Ore. It is the creation of Shrinker Foreman Bill Moore and Shrinker J. W. Black, and requires no new equipment.

Fume sickness has been one of the greatest drawbacks to the shrinking operation. Shrinkers on galvanized tanks or in close quarters use two men to a torch, each man working 15 minutes at a stretch, but despite this, it is estimated that each shrinker loses an average of six days a month from fume sickness, and the turnover of men has been large.

Other craftsmen, such as electricians, pipefitters, shipfitters, and welders have not been able to work in the same compartment where galvanized metal was being shrunk. The Albina method is stated to eliminate all this, making respirators no longer necessary and enabling workers to put in full eight-hour shifts.

Under the old method, plates became roughened and required sanding to smooth the burned surfaces for the painters. Also burning was likely to be severe, and frequently the plates were so weakened that they had to be replaced. No sanding is required when the Albina process is used, the galvanized surface is not injured and painters may proceed at once.

Engineer C. R. Goetjen of Air Reduction Sales Company of Portland, who tested the new method, said: "I saw the impossible happen. Thorough tests of the Albina method of shrinking galvanized metals shows that it works."

The flame used in the new method is highly oxidized—about 15 pounds of oxygen to 10 pounds of acetylene in the hose. The torch is lighted with a neutral flame, i.e., oxygen 1.05, acetylene 1.00. The flame is then straved of acetylene at the torch (being sure to keep the pressure in the hose) by turning down the torch valve. This leaves the flame highly oxidized and cools it.

An 11-hole torch tip is used—10 holes in a ⅜ radius with one hole in the center (holes made with a size 60 drill). It is held from ¾ to one inch from the galvanized surface, and the flame held steady until the metal is cherry red, and a barely perceptible "flowing" is noted on the surface of the heated spot.

The withdrawal of the flame at the exact moment can be learned only through experience. However, practice under the eye of a man proficient in the method makes a learner expert within an hour or two.

Spots are made about one inch apart, and water from the water-quenching ring must be kept flowing all the time.

Experiments show that using the method with a highly carbonized flame does away with fumes and burning, but this flame does not give nearly so clean a job.

The method has been tested on metal plates up to one-half inch. On the thicker plates it is advised to use torches on each side of plate—the men working on opposite sides of the *same spot*.

Shrinking with this flame can be done any place where black steel would be shrunk. Albina is using the flame for bending angle iron, iron pipe—in fact, on all structurals.

No accurate test has been made of the flame's heat, but it is estimated that the gas combination gives about 600 degrees all through the red. Galvanizing melts at about 750 degrees. However, on 3/16 plate the heat often runs to 1000 degrees without burning.

It has been found that men do not seem able to perfect their shrinking from verbal or written instructions. Therefore, Albina has established a shrinking school to teach the new process. Most learners graduate within two hours.

Crop Rating Goes Modern

Shortage of Labor May Lead To "Per Acre Per Man Hour" Basis for Selecting Crops

FACTORY methods of rating efficiency have finally been applied to the growing of vegetables to determine their production of food constituents per acre and per acre man-hour. This study, believed to be the first of its kind in history, has been made by three agricultural specialists of the Truck Crops Division, University of California. They are John H. McGillivray, G. C. Hanna and P. A. Minges.

In view of the present trend of decreasing supply of agricultural labor and future possibilities of the necessity of extreme economy of labor and equipment, they feel serious consideration should be given the subject in order to assure the nation an adequate vegetable diet. They suggest the possible desirability of eliminating certain vegetable crops under such circumstances.

HIGH EFFICIENCY RATING CROPS

(On a basis of the lower the figure, the higher the rating)

Rating based on yield per acre		*Rating based on yield per acre man-hour*	
Crop	Rating	Crop	Rating
1. Spinach	21	1. Spinach	18
2. Carrots	32	2. Winter squash	20
3. Onions	33	3. Irish potatoes	34
4. Irish potatoes	35	4. Cabbage	40
5. Celery	37	5. Carrots	40
6. Winter squash	42	6. Cng. tomatoes	40
7. Cabbage	43	7. Cauliflower	46
8. Broccoli	46	8. Lettuce	46
9. Cauliflower	46		

LOW EFFICIENCY RATING CROPS

1. Snap beans	61	1. Beets	65
2. Cantaloupe	63	2. Asparagus	66
3. Asparagus	65	3. Cantaloupe	66
4. Radishes	65	4. Market peas*	68
5. Cucumbers	68	5. Cucumbers	72
6. Market peas	71	6. Radishes	74
7. Watermelons	78	7. Watermelon	74
8. Lima beans	79	8. Lima beans	80

*Canning peas not included because a minor crop in California, and figures not available for comparison. Canning peas require much less labor than market peas because harvested mechanically, which would improve their position.

The eight known food constituents usually considered most valuable as found in vegetables-proteins, calcium, iron, caloric content, and vitamins A, B_1, C and G were used for rating factors in equal proportion to the yield in each vegetable. The three men admit the imperfections of their rating basis, but considered it the best method available.

Awards For Coast Men

Participants in Scientific Arc Welding Study Program Of The Lincoln Foundation

VLADIMIR H. PAVLECKA, chief of research, and John K. Northrop, president, of Northrop Aircraft, Inc. topped the list of Pacific Coast award winners in the scientific welding study program of the James F. Lincoln Arc Welding Foundation. They were joint winners of a $3,700 award for their study of arc welding magnesium alloys in which they developed a heliarc method. Total of the contest awards was $200,000.

Eric F. Bladholm, mechanical engineering associate of the General Plant Division, Los Angeles Bureau of Power and Light, was awarded $2,700 for his study of the maintenance of hydraulic turbines. Next came Eldridge F. Spencer, architect, of

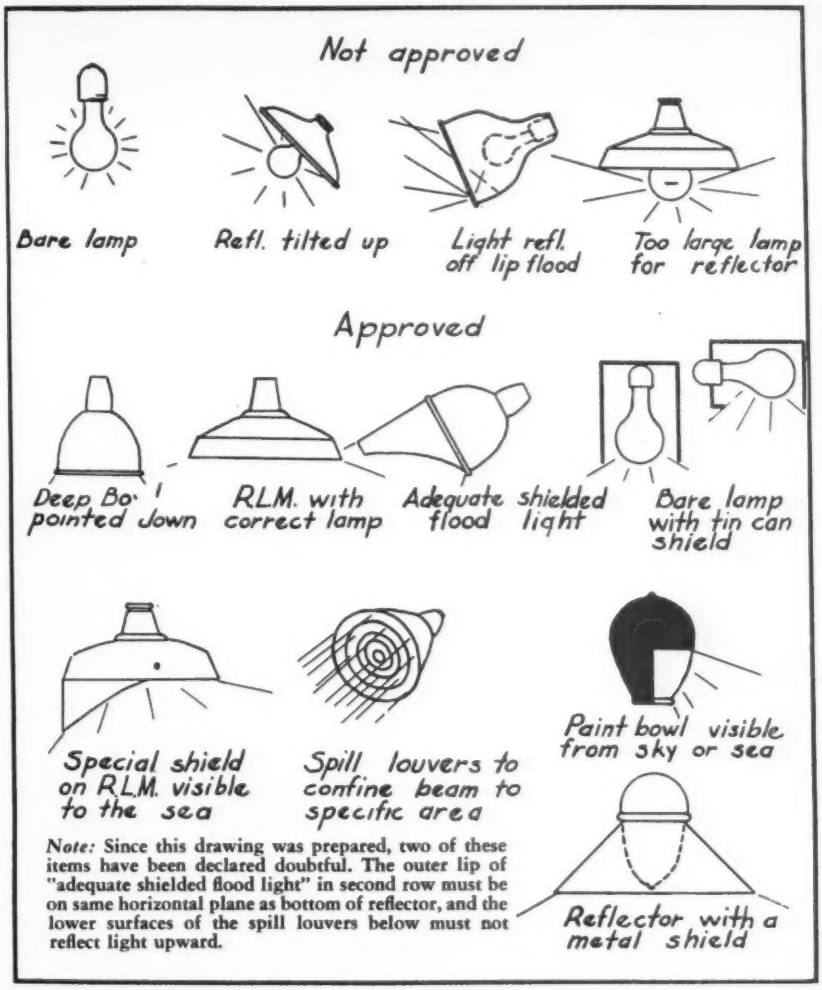
VLADIMIR H. PAVLECKA
Prize-winning Northrop Man

San Francisco, office chair with arc welded steel pipe frame, for which he won $1,500. The same amount went to D. W. Wagner, chief engineer of Wentworth and Irwin, Inc., Portland, welded construction of intercity busses and to James W. Fitch, automotive engineer, Kenworth Motor Truck Corporation, Seattle, design and construction of a stream-lined fire truck of welded steel.

A $700 award went to Richard H. Holmes, West Los Angeles, and $500 each to A. E. Niederhoff, senior chief of design, U. S. Army Engineers, Portland, H. B. Peterson, American Can Company, San Francisco, H. V. Wenger, senior tool engineer, Boeing Aircraft Company, Seattle, Lawrence Supove, consulting engineer, Portland, and jointly to Joseph Zimmerman and Court Kinison of Metal Products Fabricating Co., San Francisco. Six from the coast were awarded $250 each, eight received $150 each and 26 $100 each.

• This was a pleasure craft yard less than a year ago. Bellingham Marine & Railway Co. took it over, converted it to war use, have launched seven boats already and are operating at rate of at least one a month. Awarded Navy "E" for speedy production

• Samples of both approved and unsuitable industrial lighting installations appear in the chart at the right, which has been prepared by L. A. Bureau of Power & Light


Not approved
Bare lamp
Refl. tilted up
Light refl. off lip flood
Too large lamp for reflector
Approved
Deep Bowl pointed down
R.L.M. with correct lamp
Adequate shielded flood light
Bare lamp with tin can shield
Special shield on R.L.M. visible to the sea
Spill louvers to confine beam to specific area
Paint bowl visible from sky or sea
Reflector with a metal shield

Note: Since this drawing was prepared, two of these items have been declared doubtful. The outer lip of "adequate shielded flood light" in second row must be on same horizontal plane as bottom of reflector, and the lower surfaces of the spill louvers below must not reflect light upward.

Tighten Up On Dimouts

Burden of Proof is Put on Industries to Show Need For Additional Lighting

ALTHOUGH the revised dim-out regulations, effective October 25, do not attempt to reduce the efficiency and safety of industrial operations connected with the war effort, the Ninth Regional Civilian Defense Board has put the burden of proof upon the plants themselves to show that they are entitled to more light than the regulations specify.

Written approval for outdoor ground illumination in excess of one foot candle, or for light above the horizontal outdoors, must be obtained from the Board. However, temporary certificates, allowing 30 days variance pending such approval, may be granted. During this period, OCD lighting consultants check the applicant's needs for lighting, and pass the recommendation on to the Ninth Regional Civilian Defense Board for final action.

For more speedy action on an application for approval of the requested variance, submit it in triplicate to the Ninth Regional Civilian Defense Board, 1355 Market St., San Francisco, Calif. Frank A. Hansen, Illuminating Engineer, says the following information should be given:

1) Name, mailing address and telephone number of applicant and statement as to whether applicant is an individual, corporation, partnership, or other specified form of organization.
2) Name and address of location where variance is desired, including all information necessary to identify immediately and find the location in question.
3) A detailed statement and description of all the variances which are requested.
4) A detailed description of the operation affected by the illumination and the reasons why the requested variances are necessary in order to achieve and maintain maximum efficiency.

Several ingenious methods of shielding arc welding processes already have been worked out. One is to use a spray-painted beach-type umbrella on a shortened pole in combination with a movable screen. Another is a movable roof which also provides protection from the elements during winter months a swell as preventing a sky glow.

For outdoor lighting, one shipyard has developed a shield extending beyond the reflector equipped with parallel louvers similar to Venetian blinds. The top surface of each vane is painted matte black, and the lower surface white. The louvers are adjusted so no light is directed from the lamp of the reflector surface above the horizontal.

Care must be taken that sawtooth roofs and skylights are not brighter than the one foot candle permitted for outdoor ground illumination. Lights beneath such skylights must be shielded so no direct light is emitted upward through them.

Sky glow from sawmill slab fires and refuse burners is still a problem. Open slab fires can be well shielded by the use of closed burners. Alternate methods for eliminating sky glow from open slab fires at night might be to run the slabs and other refuse to several piles to be burned under forced draft during daylight hours, or to "hog" the refuse for sale as fuel.

• A course in aircraft plywood tooling is a new feature announced by the War Training Office at Los Angeles.

Anaconda Gets BMI

• Anaconda Copper Mining Co. has acquired control of Basic Magnesium, Inc., operators and builders of what is scheduled to be the world's largest magnesium plant at Las Vegas, Nev. Purchase of 52½ per cent stock interest was made for the sum total of $75,000. In connection with the purchase, Defense Plant Corp. bought the ore lands of Basic Magnesium, Inc., near Gabbs, Nev., for $450,000. These lands were appraised at more than $1,500,000.

Ferromanganese Survey

• A survey to determine the best site in California for a ferromanganese plant to supply the alloy used in making steel is being made for submission to the Defense Plant Corporation. War industries in the state will soon be consuming ferromanganese at the rate of 14,000 tons a year, according to Leroy A. Palmer, engineer-economist for the war minerals production bureau of the State Division of Mines, who is making the survey. Proximity to electric power, iron, manganese, coal and limestone are the considerations affecting choice of site.

WESTERNERS AT WORK...

Adel Manager

Harold P. Wade, well-known aircraft and automotive production expert, has been appointed general manager of Adel Precision Products Corp. Since last March, he has been manager of Adel's engineering service office in Detroit, Mich.

Before joining Adel, he was production-engineering coordinator for the Lockheed Aircraft Corp. Previous eastern connections include engineering and production positions with the Packard Motor Car Co., the Studebaker Corp. and the Commonwealth Steel Corp. He is an alumnus of the Technical School for Auto Body Designers and Engineers. Another Adel appointment was that of Jack P. Horning to the engineering service staff of the corporation.

HAROLD P. WADE
Advances at Adel

Industrial Relations

S. G. Sargis has been appointed assistant manager of industrial relations of the Columbia Steel Co., replacing C. T. Spivey who was transferred to Utah. He was first employed by Columbia Steel as a draftsman in 1933 at its Ironton, Utah plant. In 1934, he entered the coke department as engineer and clerk and served as testing, industrial and works engineer until 1941, when he was transferred to the Torrance, Calif. plant. J. H. Clark, Jr., succeeds him at the Torrance plant.

ODT Overseas

Charles G. Anthony, formerly vice president of Pacific Freight Lines, Los Angeles, and executive vice president of the Motor Truck Association of Southern California since last February, has gone to Washington, D.C., to take charge of the Office of Defense Transportation work in all insular posessions of the United States.

Price Adjuster

Russell D. Law, formerly chairman of the board of the Exchange National Bank of Colorado Springs, has been appointed a member of the Maritime Commission's Price Adjustment Board. Since August, 1942, he has been affiliated with the board in an advisory capacity.

Heads Harvill

F. M. Hoefler, former vice president and general manager of Harvill Aircraft Die Casting Corp., was appointed president of the company to succeed H. L. Harvill, who retired last July. He has an extensive background in the aircraft industry and has been connected with Harvill for more than four years. Also, he has been affiliated with Douglas Aircraft and Vultee. Warren Stratton, Los Angeles attorney, was elected a director. Mr. Stratton has been attorney for the company for the past several years.

Pulp Prez

Fred G. Stevenot, San Francisco, has been elected president of the Puget Sound Pulp & Lumber Co., in Bellingham, Wash., to succeed the late Ossian Anderson. Mr. Stevenot has been a director of the company since 1937, and is chairman of the board of the company's subsidiaries, Canadian Forest Products, Ltd. and Beaver Cove Timber Co., Ltd. Formerly he was Director of Forestry of the State of California, a member of the California Railroad Commission and a vice president of the Bank of America.

FRED G. STEVENOT
Heads Pulp Organization

Lawson Turcotte, associated with Puget Sound Pulp & Timber Co. since 1926, and secretary-treasurer since 1934 was elected a director and executive vice president. Walter DeLong was elected vice president.

Air Council

Harry Woodhead has been elected president of the Aircraft War Production Council, Inc., which was organized by eight companies in Southern California to coordinate effort and to pool facilities for increased aircraft production—to get the United Nations more airpower per hour.

Mr. Woodhead, president of Consolidated Aircraft Corp., entered aviation in April, 1940, when he became president of Aviation Manufacturing Corp. In August, he became chairman of the board of Vultee; in December, he was elected president of Auburn Manufactuirng Co.; later, he became board chairman of both Auburn Central and Aviation Manufacturing. However, when he assumed presidency of Consolidated in January, 1942, he dropped all other affiliations, except directorship of Vultee and Auburn Central.

HARRY WOODHEAD
Aircraft Production Leader

Personnel Chief

John O. Steendahl has been appointed director of personnel and labor relations for the National Motor Bearing Co. of Redwood City, Calif. He succeeds Beverly Holmes, who now is a captain in the Army Air Corps. Formerly, Steendahl had been with the Labor Relations Associates in the East, and more recently he had been associated with the American Potash & Chemical Corp., Trona, Calif.

Pacific Car

Don E. Douglas, Gerald N. Nauman and Theodore Monsen are recent additions to the management staff at Pacific Car & Foundry Company of Renton, Wash. Douglas is assistant to J. E. LeBlanc, treasurer, whose numerous duties include supervision of plant protection, personnel

and public relations. Douglas formerly was a Seattle property management expert and was a Pacific Coast track star in the early twenties while attending the University of Washington.

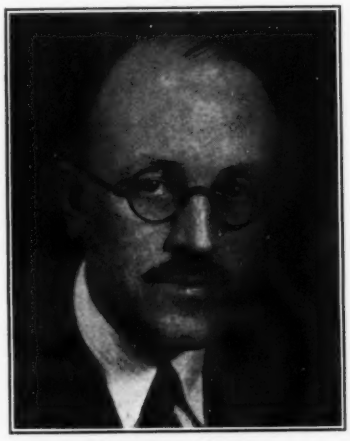
Nauman is assistant to President Paul Pigott, and hails from San Francisco, where he was a member of the insurance firm of H. A. Nauman & Co. He attended the Massachusetts Institute of Technology and was graduated from the University of California. Monsen, formerly of Aberdeen, Wash., is assistant to Frank Stewart, plant superintendent of the rapidly expanding Pacific Car & Foundry Company.

Becomes President

Edward Morris has been elected president of the Morris Engineering Corp., Los Angeles, succeeding Ralph Morris. Mr. Morris, who had been engaged in developing the Bessemer iron properties of San Bernardino county for the Western Minerals Corp., announces that now the Morris Engineering Corp. will devote its activities exclusively to mining instead of general engineering.

Joins Northrop

Leslie H. Magor, formerly Pacific Coast vice president for White Motor Co., is now transportation coordinator for Northrop Aircraft, Inc., at Hawthorne, Calif.



LESLIE H. MAGOR
Handles Transportation

Secretary Chosen

Walker S. Clute, consulting petroleum geologist and engineer, has been appointed secretary-treasurer of the Southern California Section, American Institute of Mining and Metallurgical Engineers. He succeeds Walter Abel. The latter has recently accepted a position with the RFC, supervising loans to mine operators, but will serve as chairman of the section for the coming year. E. G. Trostel will be vice-chairman for the petroleum division and W. C. Browning for mining.

Pick Portlander

After the Los Angeles Shipbuilding and Drydock Corp. at San Pedro, Calif. had been completely reorganized, Alfred F. Smith was elected president. Formerly, Mr. Smith was president and operating head of the Columbia River Shipbuilding Corp., Portland, Ore., which operated during World War I building 8800-ton steel cargo vessels. More recently, Mr. Smith has been president of the General Iron and Steel Works, Portland.

Los Angeles Shipbuilding and Drydock are active in the construction of naval

ALFRED F. SMITH
Sends Ships Down Ways

auxiliary vessels. Their first vessel, the U.S.S. Ajax, a large repair ship, was launched August 22. Other officers elected were: George R. Larwill, vice president; Walter Barnett, vice president and general manager; J. B. Ingoldsby, secretary-manager.

Engineer Promoted

A. H. Williams, former hydraulic engineer with the U. S. geological survey in Helena, Mont., has been promoted to the rank of lieutenant-colonel at an army engineer replacement center.

Match Manager

Fred Mundt has been named manager of the Diamond Match Co. plant in Fairfield, succeeding Donald Soutar, who has joined the Army Air Corps.

Transport Job

Robert D. Sangster has been appointed manager of the transportation department of the Los Angeles County Chamber of Commerce, succeeding H. R. Brashear, who resigned to become traffic manager of the National Aerounautical Chamber of Commerce at Washington, D.C. Sangster recently completed 18 years as manager of the Chamber's industrial department, and before that, he was a traffic man.

In New Boat

Russell S. "Rusty" Callow, known throughout the country as a coach of college rowing crews, has been named personnel director of Webster-Brinkley Company, Seattle manufacturers of marine and deck machinery. He has been granted a leave of absence from the University of Pennsylvania, where he has been crew coach for a number of years, to take over his new duties. A native of Shelton, Wash., Callow was graduated from the University of Washington where he was a member of the school's rowing crews. In 1923 he was made crew coach and developed the U. of W national championship crews of 1924 and 1926.

Sand to Ink

Ora Bundy recently was appointed commissioner of the State Department of Publicity and Industrial Development with offices in the Dooly Building, Salt Lake City, Utah. Bundy is a well-known contractor and has had his own sand and gravel plant in Ogden.

Up a Notch

G. G. Brubaker has been chosen general sales manager of The Pennzoil Company of California. Widely known in the petroleum trade as "Gib" Brubaker, he has been associated with the Los Angeles branch of

G. G. BRUBAKER
Directs Western Sales

Pennzoil for the past eleven years. He became Los Angeles district sales manager in 1937 and in 1942 divisional sales manager, in charge of both dealer and industrial sales in metropolitan Los Angeles. As general sales manager, he will now direct all dealer and industrial sales for the company in the eleven western states.

In the Army

Jack Frost, executive secretary of the Aircraft Parts Manufacturers Association, Los Angeles, is in the army now.

• Not one of the 32 items listed in this early picture have gone out of use. Here they are: lathes, emery wheels, lathe chucks, bench vises, lathe dogs, twist drills, fluted reamers, Stubbs steel, set screws, cap screws, machine screws, stove bolts, spring cotters, steam packing, rubber gaskets, gage glasses, screw plates, hand taps, hatchet drills, screw wrenches, pattern letters, calipers, dividers, hand vises, pliers, try squares, steel rules, Stubbs files, model castings

Stock Shelves Make History

AS SOON as miners staked out their first diggings and "Gringos" began to succeed Mexicans as cattlemen and grain farmers, industrial development in the West started. These operations, plus the servicing of land and water transportation, required tools and mechanical supplies of one kind or another. Consequently it had to be someone's business to see that the needed things were brought out from eastern factories, and the supply house sprang into existence.

Small steam engines, waterwheels and windmills were the only sources of power, and sailing vessels, steamships of uncertain reliability, horses and oxen the only means of transportation. Hence the number of items carried for each line of business was small, but on the other hand, one supplier had to take care of almost any want, all the way from grindstones to molasses.

From the earliest days down to the present, the type of stocks carried have been accurate reflections of the stage of development of industry. The history of the firm of C. W. Marwedel of San Francisco and Oakland, whose eighty-fifth anniversary is being celebrated this year is an interesting example, in view of the fact that it is not only one of the oldest establishments in California but also has grown to be one of the largest mill supply houses in the country.

Surveying instruments, optical goods and steam gages constituted the stock when the business was founded in San Francisco in 1857 by C. F. Marwedel, whose son, C. W. Marwedel, and his grandsons, Charles Arthur and Ernest Ferdinand, now constitute the firm. A year later hardware was added.

A big change in business conditions already was evident when C. F. Marwedel opened a building of his own on First Street in 1872, opposite the old Union Iron Works, predecessor of the present big Bethlehem Steel Corporation shipyard. The fact that the stock was now machinists' and engineers' tools and supplies was proof that San Francisco had become a sizeable city, that inland cities also had sprung up and the whole interior was being settled.

Simple placer mining had given way to underground operations, irrigation had begun, gas lighting was coming in and even the earliest steps in the use of electricity were faintly apparent.

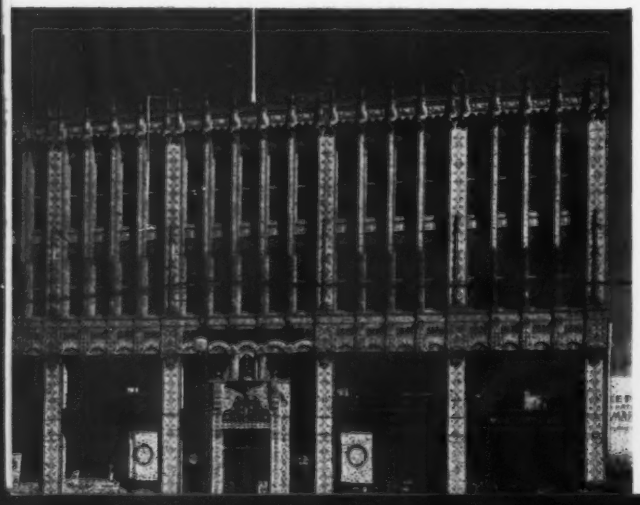
Delivery was a problem from the earliest gold rush days, in view of the long distance from eastern factories and the limitations of early local machine shops. The answer to it was building up large stocks, both of the quick-moving and the hard-to-get items, so that customers would not have to wait many months for the arrival of a shipment.

Coming down to later times, the advent of the automobile resulted in a great growth of machine shops which far exceeded the drying up of the old-time blacksmith shops with their sidelines of horse-shoeing. This in turn greatly expanded the size and diversity of the inventory of such a supply house as Marwedel.

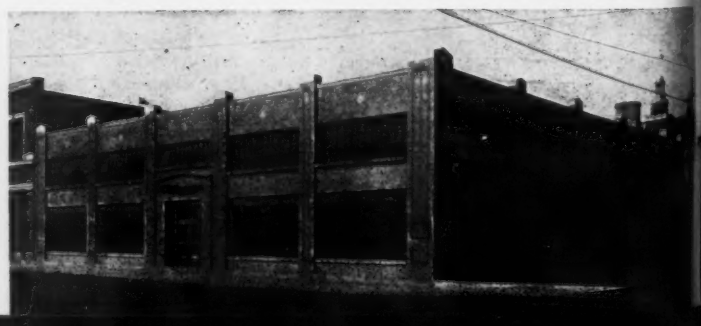
At the same time, stocking of woodworking tools developed. This was due in part to the fact that the installation of a work bench in the home garage for looking after the car was an encouragement to engage in the pastime of woodworking also. Other factors were the shortening of business hours, giving more leisure, and the fact that the adult generation was now largely composed of men who had taken manual training in school.

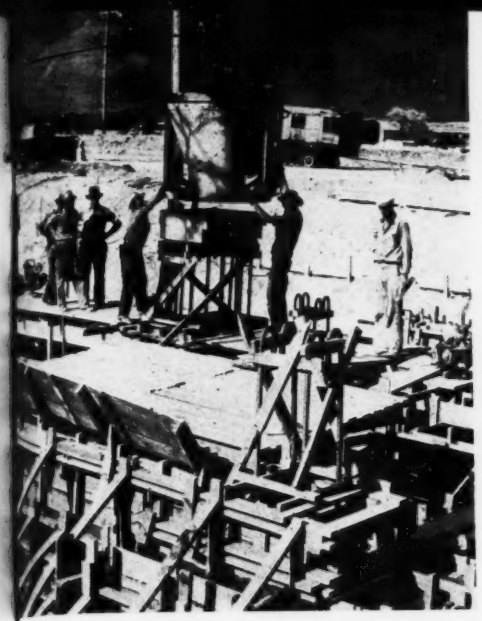
Where the supply house has been a step ahead of the manufacturer in visualizing the need of volume production is exemplified in Marwedel's building up of stocks of specialized brass screws, bronze bolts, special taps, coil springs, etc. at a time when the factories only made them up on special order.

Our actual entry into the war and the defense preparation period that preceded it greatly accelerated the industrialization of the West, and the function of the distributor has been correspondingly increased because of the greater call for service from the war industries.

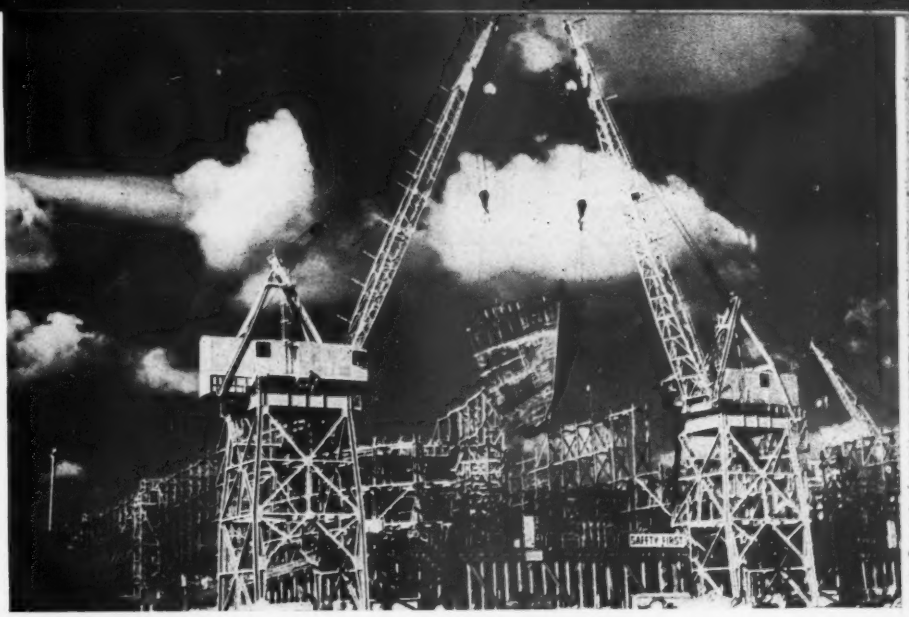


• Industrial conditions of today demand greater inventories, as evidenced by the present headquarters of the Marwedel firm which appears at the left and the Oakland branch illustrated in the picture below. This year celebrates 85th anniversary

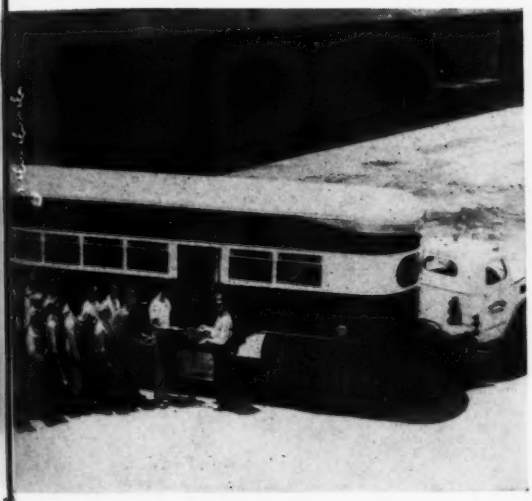




• Pouring blast furnace foundations at $150,000,000 Geneva Works of U. S. Steel Corporation near Provo, Utah



• Above shown is a huge section of a Liberty ship's prow being hoisted into place on the shipways. This illustrates the progress being made in the technique of fabrication in shipbuilding. Vast units like this are prefabricated in the shops



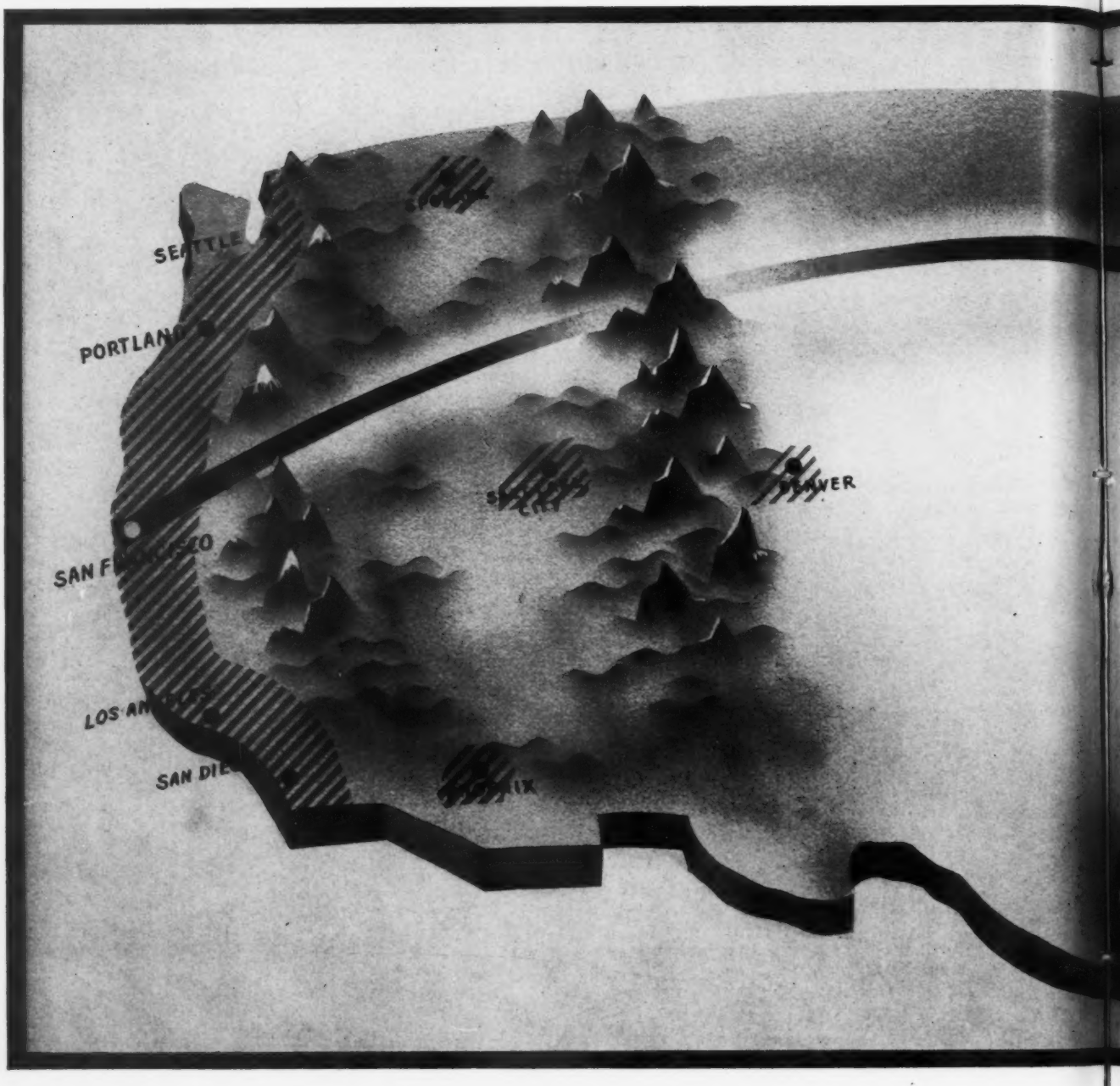
• (Left) Semi-trailer chassis is adapted by Fruehauf Trailer Co. to mounting bus bodies holding capacity loads of war workers

WESTERN INDUSTRY
In Pictures

• (Right) Ripe fruit waits for no man at the Richmond-Chase cannery in San Jose, so the lift trucks make it snappy

• California Scrap Iron Corp. wins first Coast merit award for scrap. From left: H. F. Christenson, W. F. Breuer, Marshall Shapiro (pres.), Dunsmuir Neher, J. S. Williams (mgr.), Col. F. M. Smith, Edward Singley. All but Shapiro and Williams are WPB men

• George Mathay of Boeing designed new squeeze for placing grommets (in right hand). Old type pliers shown in his left



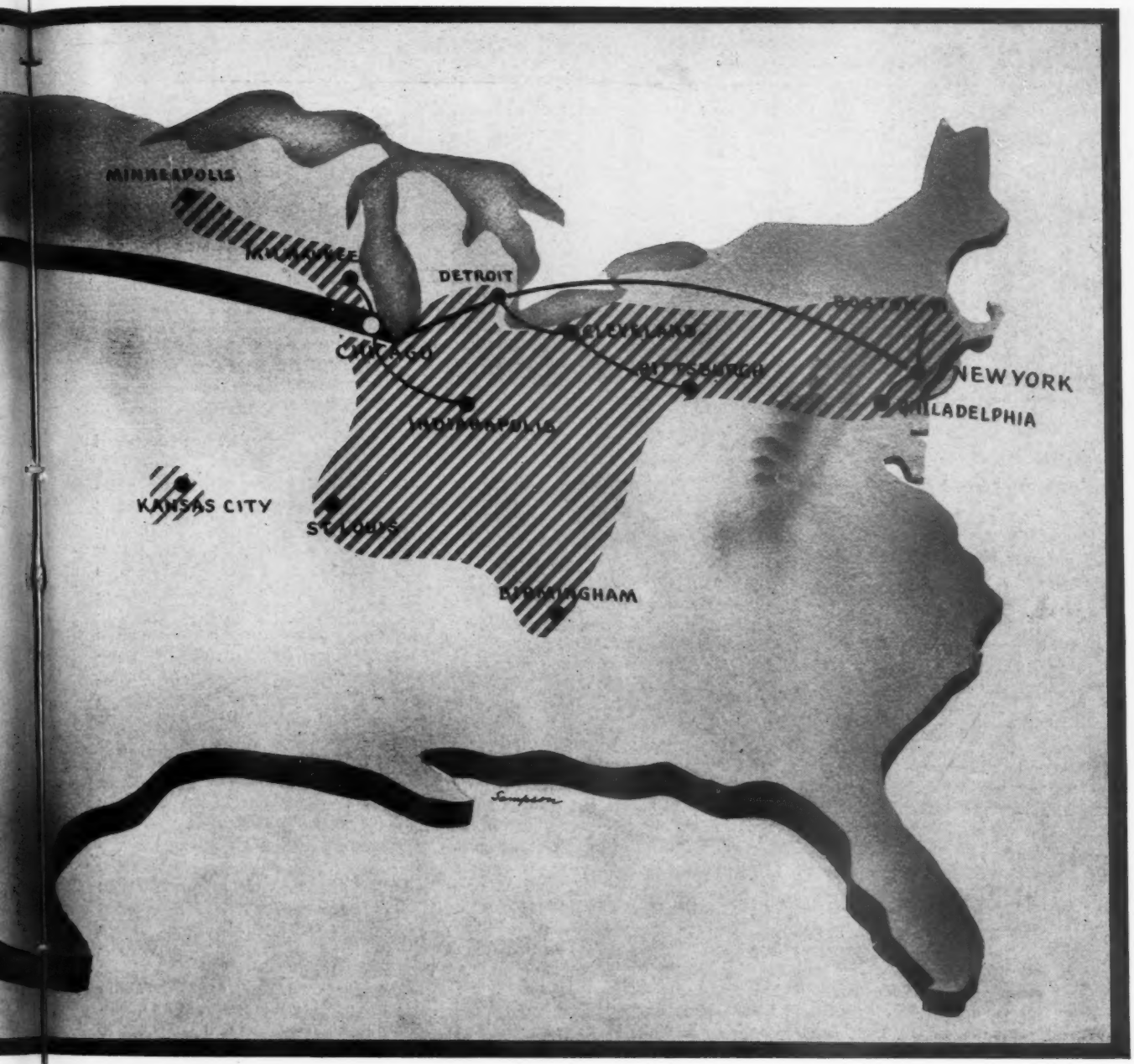
POST-WAR PLANNING—Natural Barri

Laws . . . Dictate Need For Independent Western

POST-WAR planning is already under way, for the West as well as nationally, and the success of these plans will depend on whether they are based upon economic laws. The fact that physical characteristics which man cannot change have created the separate identity of the Western industrial empire portrayed on the map above must be taken into account. Consequently, it is essential that Western planning councils, chambers of commerce, governmental bodies and private corporations engaged in working out programs for adjusting industrial operations from war purposes and war economy to peace-time objectives and conditions study the fundamentals of the situation with care in order to avoid missing the real objectives.

Profiting by the experience of the last war, when widespread unemployment and

This specially drawn map shows to ex... barrier between the closely knit easte... Western industrial area. It is clearly ev... will be done by the East with its own ... because of great distance and natural b... gle unit, work out its own plans based o...



Barriers . . . Economic rn Study and Action

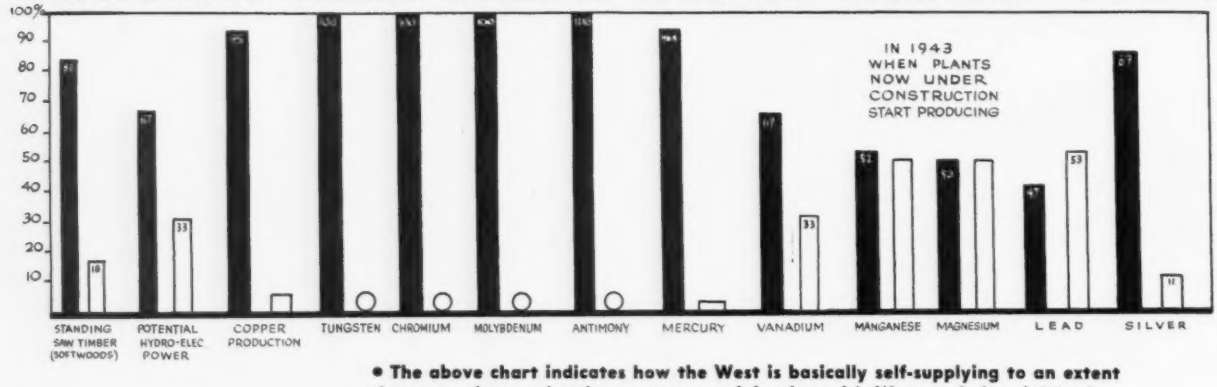
ws to ex cale the vast distance and the natural it easte dustrial centers and the independent early ev t that post-war planning and thinking ts own i ests and problems foremost. Likewise, atural b ers, the industrial West must, as a sin- s based o s own resources, conditions and needs.

dislocation of business ensued because of the absence of preparation for the conditions that arose, post-war possibilities are being gone into on a surprisingly large scale, even though today it is impossible to predict when the conflict will end or what the make-up of the world map will be. It is generally realized that for at least two years after hostilities actually cease, the country will still be operating under war conditions because of the time that will be required to adjust political situations to a point where we can safely reduce our armed forces.

Instead of demobilizing immediately, as was done after the last war (and even that took six months), it is expected to be a more gradual process this time, and two years easily will elapse before major attention is devoted to living at peace. Consequently, post-war planning will be geared to prepare both for a period of immediate adjustment of employment and production and also for a permanent peace-time economy with long range objectives that will follow. A study of the gross national output in 1940, estimated at 82.2 billion dollars, shows that 55.2 billions were made up of food, clothing, rent, household operations, etc., 8.3 of consumers' durable goods,

WEST ■ PARTIAL LIST OF □ REST OF U.S.

NATURAL RESOURCES OF ELEVEN WESTERN STATES



• The above chart indicates how the West is basically self-supplying to an extent that necessitates planning programs originating with Western industrial leaders

Post-War Planning

Continued from preceding page

5.5 of construction, 9.2 of plant equipment and inventories and 4.0 of national security. The war has thrown this all out of balance, with national security becoming the major activity, but when peace returns civilian needs will again become paramount.

Sound preparation in the West for this future period, not only of immediate reconstruction but also of more permanent growth, requires recognition by Western industrial leaders that the scope of Western activities must not be fixed by some overall plan developed in Washington or New York that attempts to make Western development a subordinate phase of an Atlantic Seaboard economy. Distance from the heavily populated centers of the East and a mountain barrier that prevents East and West from becoming a continuous economic unit, have set the area apart to begin with. Now the tremendous development of its natural resources, hastened many years by the pressure of the war effort, has caused the West to become more self-supplying, to depend more largely on its own steel, aluminum, copper, magnesium, oil foodstuffs and other fundamentals.

It has become apparent also that it is economically sound to process the raw materials here, instead of transporting them long distances elsewhere to be converted into finished products, because the West has unusually favorable conditions for manufacturing operations and a consuming population large enough to utilize much of the output. Hence our shipbuilding and aircraft industries, our new steel mills, aluminum and magnesium plants, our wood products enterprises and many other examples of industrialization.

Industry already is showing that it does not intend to leave post-war planning entirely in the hands of government theorists at Washington, who undoubtedly will have grandiose schemes involving not only huge public works projects to take up the slack in employment temporarily, but also the subordination of private enterprise to government direction.

The most conspicuous example of a private business endeavoring to work out its own future salvation instead of waiting to see what Washington does is probably that of General Electric. This corporation has a large post-war staff already at work, estimates have been made of the probable drop-off in employment when its own plants cease war production and a program for manufacturing replacement items and new products is under way.

On the Pacific Coast, Southern California Edison Co., Crown-Zellerbach and Columbia Steel Co. are understood to have made considerable progress in post-war planning. There are also such bodies as the California State Chamber of Commerce, Pacific Northwest Planning Commission, the Senate Interim Committee on Economic Planning of the California legislature and the Pacific Southwest Academy.

The obvious danger to the West in both governmental and private planning programs directed from the East is that Western industrial development will be considered as merely a secondary matter, without recognition of the obvious geographical facts so dramatically shown on the large map on the preceding two pages. Incidentally, *Western Industry* wishes to make clear that this map is not intended to slight or ignore the industrial development of the South, which is a separate phenomenon that has no bearing on the industrial relationship of the West to the rest of the country. The industrial areas of the South were omitted merely because their inclusion would have confused the story the map endeavors to tell.

WESTERN INDUSTRY
503 Market Street
San Francisco, Calif.

- ☐ Please list us in your tabulation of Western post-war planners.
- ☐ Please supply us with your own tabulation of Western post-war planning groups, organizations and business firms.
- ☐ Please put us in touch with others in our line of business who have post-war planning programs.

Name.....*Title*.....

Company.....

Address.....

.....

CLEARING HOUSE FOR POST-WAR PLANNING INFORMATION

To enable Western organizations and business firms to learn who else is engaged in post-war planning, *Western Industry* will be glad to act as a clearing house. Although much post-war planning already is going on, it seems to be the case that comparatively few groups are in touch with each other or even know who the other post-war planners are.

Consequently *Western Industry* requests all who may be interested to fill out the coupon and send it in.

Wineries to Make Rubber

• Favorable recommendation has been made by the chemical branch of the War Production Board for the utilization of California wineries to produce alcohol for the manufacture of synthetic rubber program according to Felix Butte, Jr., chairman of the California Wineries Rubber Committee. Butte returned recently from Washington where he was assured by William M. Jeffers, rubber director, that the California proposal would be given immediate consideration.

Discontinue Tin

• Tin mill operations at the Columbia Steel Company plant at Pittsburg, Calif., have been discontinued, because of the government's latest directive decreasing tin plate production. This would limit the tin mill operations at only 37½ per cent of capacity, which would be an impractical operation in view of increasing difficulties in maintaining satisfactory work schedules. About 200 men are affected, who will probably be absorbed in other operations in the Pittsburg plant.

Mailway Banking

Can Help Your Business

Any service that saves you time and trouble helps your business. Mailway Banking does just that. It enables you to handle most of your banking right in your office, store or home, day or night whenever convenient. Our Mailway envelopes and forms make this service especially easy and safe.

Write today for information.

CROCKER FIRST NATIONAL BANK
OF SAN FRANCISCO
California's Oldest National Bank

Member Federal Deposit Insurance Corporation
ONE MONTGOMERY STREET

SOLVED

these tough wet and hot lube problems!

1. WET AND HOT RUNNING BEARINGS
2. CONVEYER BEARINGS
3. GENERATOR AND MOTOR BALL BEARINGS
4. IDLER BEARINGS

Have you a *tough* lubrication problem where grease must resist *both* heat and water? Then Unoba—Union's remarkable barium soap grease—will solve it.

UNOBA RESISTS BOTH HEAT AND WATER!

Ordinary sodium soap greases resist heat, but not water, while calcium soap greases resist water, but not heat. That's why Union engineers developed Unoba—*a barium soap grease.* It resists *both* heat and water—stands up under the toughest wet and hot-running conditions.

TEST UNOBA YOURSELF!

First, be sure to clean any parts to be lubricated, so that none of the old calcium or sodium soap base grease remains. Second, test Unoba by giving it your toughest lubricating problem. See if you don't find it's the best all-round lubricant you've ever used.

Call your Union Oil representative today! Ask for Unoba—the grease that resists *both* heat and water.

UNOBA
an industrial product of
UNION OIL CO.

OIL IS AMMUNITION—USE IT WISELY!

LABOR
AND THE INDUSTRIAL WEST

ONCE again the government is trying to standardize wages in the aircraft industry, and hearings were resumed in Los Angeles last month after an abrupt termination in July due to failure of the various government agencies to agree on policy.

Although Paul R. Porter, representing the War Labor Board, announced that the board would not approve any increases above the scale prevailing on September 5, 1942, except to correct inequalities, eliminate substandards of living or to aid in the effective prosecution of the war, and the California manufacturers held that no general wage increases were necessary, Boeing representatives indicated agreement with the union demands in order to protect their factory from being drained of workers to the shipyards in the Northwest.

Both AFL and CIO agents reiterated their request made last July, for a scale ranging from 95 cents an hour minimum to $1.65 maximum. At present the minimum ranges from 60 cents to 75 cents and the top is $1.35 for classifications coming within the scope of the hearings. AFL wants the number of classifications reduced about one-half, and CIO wants them limited to a small number.

Average annual earnings of West Coast airplane workers as of June 15, 1942, were $2321.28, according to the management representatives, headed by W. G. Tuttle of Vultee, and straight time hourly rate in the Los Angeles area has increased 24.2 per cent, while the cost of living increased only 17.9 per cent.

Richard Frankensteen, CIO representative, contended that food and clothing costs had advanced beyond other items, and that the transportation cost was extraordinarily high around Los Angeles.

A detailed system of job classification and evaluation is necessary because of the complicated methods of production inherent in aircraft construction, according to Mr. Tuttle, therefore management has asked for automatic time increases for beginners and a wider range of merit increases in the upper labor grades. He also held that:

1) The great majority of airframe employes are inexperienced and with a dearth of highly skilled craftsmen increasing production demands, incentives for the individual employe to improve his skill and thereby justify upgrading.

2) Due to the need of flexibility in aircraft manufacturing methods, many individuals through their skill and incentive can be utilized on several different jobs and a range of rates is needed to properly compensate them.

Application of Overtime Order

No blanket interpretation is possible of the question of the work week involved in the President's executive order on overtime wage compensation effective October 1, according to the Merchants and Manufacturers Association of Los Angeles.

"It is indicated," they report, "that considerable latitude will be allowed where employers and employees are able to agree on a mutually satisfactory work schedule which affords a day of rest in each regular work week. An example is a case informally approved by the Labor Department in which employees working on a calendar work week basis are off Sunday in the first week and Saturday the week following, thus resulting in a period where 12 consecutive days are worked. Since the regularly scheduled work week is the calendar week, the employee has had a day of rest in each week, and no overtime premium compensation need be paid.

"The order is interpreted not to require any particular number of hours be worked in any day for that day to be considered as a day worked; hence, short hours on several work days will not prevent necessity if it otherwise exists of paying double time for the seventh consecutive day. . . .

"The enumerated holidays are to be considered as days worked for the purpose of computing sixth and seventh consecutive days whether or not work is actually performed (though not paid for if not worked). This is so despite the fact that Paragraph IB states that time and one-half shall be paid for 'work performed' on any of the enumerated holidays."

Agreement to Stop Shifting

Migration of labor from one shipyard to another in the San Francisco Bay area except for due cause is to be eliminated under an agreement worked out between the Bay Cities Metal Trades Council and the shipbuilders. It provides for a uniform clearance card to be given a workman on termination of his employment, without which he cannot get on at another yard or be re-employed by his former employer.

Each shipyard must furnish daily to all the other yards and to the unions a list of men not cleared for re-employment. A joint appeal board is set up.

A similar agreement has been worked out for the Portland-Vancouver area.

Miners Get $1 Raise

The War Labor Board has made its first exception to the rule that there should be no wage increases for the duration, by granting copper, lead and zinc miners, 10,000 in Idaho and Utah mines, a $1 a day increase in pay.

Employes will get only half of the increase of 50 cents each pay day. The remaining half is withheld until the fourth pay day when it will be given only those workers who have complied with rules and regulations as to continuity of work and standards of production.

An exception involved workers of the American Smelting & Refining Company. The board raised the pay of workers in six of the ten mills and smelters from 2½ to 12½ cents an hour. In three mills the workers were denied any increase.

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Douglas Fir Cases Heard

FOUR cases in the Douglas fir industry are being heard by the five-man Pacific Coast Lumber Commission of the National War Labor Board as the start of their determination of wages, hours and labor conditions for the entire lumber industry in Washington, Oregon, California, Montana and Idaho. Seventeen cases in all are to be heard.

Ben H. Kizer, Spokane attorney, heads the commission as representative of the public. E. B. MacNaughton, president of the First National Bank of Portland, and Dean Ballard, head of the labor relations board of the Seattle Chamber of Commerce, represent industry, while James Landye, a Portland attorney specializing in labor law, and William Geurts, in charge of migratory labor camps of the Farm Security Administration in the Northwest, are the labor representatives. Thomas Fair Neblett, chief mediation officer of the National War Labor Board, is on loan to the commission as executive secretary, and offices have been established in Portland.

It was stipulated in the first AFL case that arguments would be confined to whether wages should be raised from 82½ cents an hour to a standard minimum of $1.05, and whether they should be retroactive to May or September 1. The CIO petition is for equal pay in all Douglas fir operations in the Northwest for the same kind of work done in 45 classifications and increase of minimum pay to 95 cents an hour.

From December 1, 1941 to August 1, 1942, 17.6 men left the lumber industry for every 15.4 new men hired, it was testified by Louis Solomon, regional director of the Bureau of Labor Statistics.

The Pankratz Lumber Company promised a $25 war bond every 60 days to everybody who stayed with the company, and another Seattle sawmill raised its pay for common labor to 92½ cents an hour in an attempt to block the lure of shipyards and aircraft plants, according to Jerry Simpson, economic advisor of the Pacific Coast Labor Bureau, Seattle.

The first decision of the commission, rendered on October 26, ordered a "union security" clause to go into immediate effect in 15 logging and sawmill operations in the Klamath Basin pine industry of Oregon, affecting 4,500 workers. It provides: (1) Workers need not join a union to be employed; (2) Employers approve of its employees joining a union but they may, however, hire non-union members; (3) If a worker is a union member, he must maintain his good standing in the union as a condition of employment.

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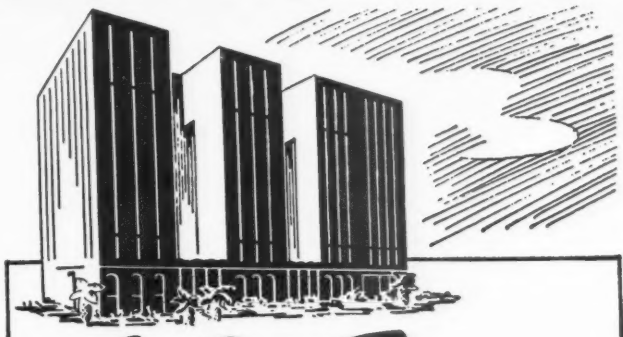

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Concrete Ships

• Ships built of concrete, which achieved wide publicity in the last war but turned out to be failures, are being made again. The first of such vessels, named "Concrete No. 1," was launched Oct. 13 at the yard of Concrete Ship Constructors at National City, a suburb of San Diego. Tovares Construction Co. were joint builders of the craft.

It is a 14,000-ton, 375-foot barge, carrying 8,000 tons of liquid fuel and shaped like a self-propelled barge, but has no propulsion machinery.

Almost six months elapsed between laying of the keel and launching. Succeeding vessels will require only 2½ months.

Steel is used for reinforcing the bulkheads, the sidewalls, and for the rudder, but 40 per cent less of this strategic material is needed in concrete ship building than conventional vessel construction.

Concrete is poured in three separate operations, after steel sections are fabricated on the assembly line principle.

Equipment of Sponge Plant

The proposed sponge iron plant at Laramie, Wyoming, to be established by the U. S. Bureau of Mines, will have two rotary kilns. One will be built from the design of the kiln described in Bureau of Mines Bulletin 270, "Production of Sponge Iron," in which it is called the Barrett sponge iron kiln. The other will be a straight line kiln intended for testing several other processes for the production of sponge iron.

Output of these two kilns is at present unknown, but the purpose of these larger scale tests is to learn what capacities can be realized. The production from each kiln is certain to be over ten tons daily but might be as much as 50 tons, *Western Industry* is informed by R. S. Dean, Assistant Director of the Bureau.

Those Cargo Ships

• Current reports on the operations of Howard Hughes and Henry Kaiser indicate that three cargo planes will be built by the partners at an approximate cost of $18,000,000.

Construction details announced do not cover dimensions, specifications or performance; type will be high-wing and twin hulled.

Lumber components comprise approximately 60% of the empty weight, steel and aluminum 33%. Size is given as "twice as large" as the Martin Mars, capacity estimated at 60 tons.

Jeweled Bearings

• Jeweled bearings for army and navy technological instruments will go into Los Angeles production some time during December, the first time such an industry has been attempted in the West. Raw material will be synthetic sapphires, with specially designed machinery used in processing the hard and minute sapphire blanks into the delicate bearings required in various military instruments. Owners of the new industrial plant are Louis Levin and his son, Sam, and N. Holzman, operating under the firm name of Louis Levin & Son, Inc., long established in the West as manufacturers of miniature lathe attachments and special timepieces.

Merit Certificates

• Two San Francisco employees of Bethlehem Steel Company were awarded certificates of Individual Production Merit by the WPB in September. They were Samuel Feiner, who designed four gauges for a hand-operated elbow-edging machine, saving over 1,000 man-hours monthly, and Herbert Lowry, who devised a drill square to square reamers in spot-face surfaces. Honorable mention was given Joseph F. Ekstrom, employee of Inspiration Copper Company, Inspiration, Ariz., for devising a simple clamp for adjustment to the cables used in unloading lumber for mine work.

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WESTERN TRADE WINDS

NEWS ABOUT THOSE WHO DISTRIBUTE AND SELL INDUSTRIAL EQUIPMENT AND MATERIALS

W.R. Slater has been appointed Firthrite sintered-carbide engineer by the Firthrite division of **Firth Stering Steel Co.**, McKeesport, Penn., for Northern California and the Northwest.

American Ventilating Hose Co. is the new operating name of Hersey & Company, Inc., 2021 Minor North, Seattle, Wash. The company will specialize in the manufacture of 3 inch to 24 inch diameter flexible ducts of various types for ventilation and fume removal.

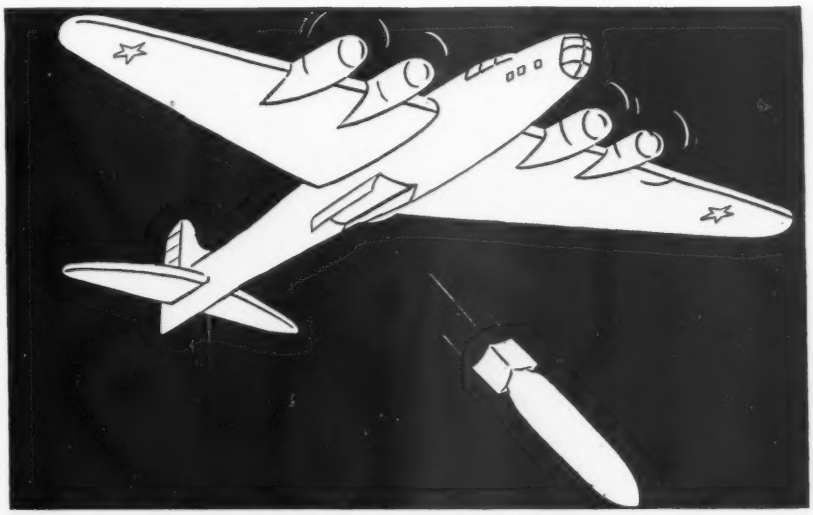
Twenty-one old-time employees of the **Victor Equipment Company** of San Francisco staged a surprise dinner September 30 in honor of Richard "Dick" Heinemann, general plant superintendent, for September marked his twenty-fifth year with the firm. He was presented with an engraved wrist watch by President L. W. Stettner in appreciation of his loyal service. The second oldest member of the Victor family in length of service, he has seen Victor grow from a modest welding repair shop housed in a second-story loft to the third largest manufacturer of acetylene and cutting apparatus in the United States. In his spare time he serves as a member of the Coast Guard Auxiliary, on river and bay patrol duty.

VICTOR VETERANS
Dick Heinemann (left) and L. W. Stettner

Haven Saw & Tool Co., located at 365 Tenth St. in San Francisco and 950 East 14th St. in Oakland, supplants the De Walt Electric Saw & Tool Co.

Salsbury Corp., 1161 East Florence Ave., Los Angeles, have acquired the personnel and equipment of the S. B. Coast Tool Co., Huntington Park. E. F. Salsbury, president, has been appointed S. B. Coast manager of the grinding department.

Peterson Tractor and Equipment Co., 645 Watkins St., Hayward, Calif., are building new headquarters at the corner of Soto and A streets. The building will be 150 feet square and the remainder of the lot will be used for outdoor storage for large machinery.



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THE WEST ON ITS WAY

ARIZONA

AIR FORCE INSTALLATION—A. Teichert & Sons, Inc. and John C. Gist, Sacramento, Calif., have been awarded a contract in excess of $1,000,000 for the construction of an Air Force installation at Hereford. Contract by the War Department; supervision by Albuquerque, New Mexico, District Office of the Corps of Engineers.

RAILROAD SPUR—Arizona Constructors, Luhrs Bldg., Phoenix, will build a rail-oad spur in Coconino county. Contract by U. S. District Engineer Office, Albuquerque.

GARNISH PLANT—Calowell Construction Co., 1835 E. Wardlow Road, Long Beach, has been awarded a contract by the U. S. District Engineer Office, Los Angeles, for the construction of a garnish plant for camouflage net rigging at a relocation center in Yuma county. Estimated cost $500,000.

HOSPITAL UNITS—J. S. Sundt, Tucson, has been awarded a contract under supplemental agreement by the U. S. District Engineer Office, Los Angeles, for construction of buildings, paving and utilities for additional hospital units at an airfield in Pima county. Estimated cost of $500,000.

TARGET RANGES—J. S. Sundt and L. M. White, Tucson, will construct a radio range, skeet range, pistol range and stage houses at a basic flying school in Maricopa county. Contract for less than $34,-104.90 by U. S. Engineer Area Office, Marana.

RUBBER PLANT EXPANDS—Goodyear Aircraft Corp's Arizona plant will be doubled in size, according to an announcement made by Raymond A. Hudson, general superintendent.

AUXILIARY LANDING FIELDS—Clyde W. Wood, Inc., 208 West Eighth St., Los Angeles, will construct auxiliary landing fields at an air force flying school in Yuma county. Contract by U. S. Engineers, Los Angeles.

AIR CONDITIONING AND HEATING—W. C. Bradshaw, 912 Echo Ave., Fresno, Calif., has been awarded a $50,000 contract by the Los Angeles U. S. District Engineer Office for air conditioning, heating and dustproofing at an army camp in Maricopa county.

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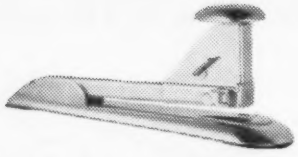

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NUMBERING RUNWAYS—J. A. Bridges, Phoenix, has been awarded a contract for less than $50,000 by the U. S. Engineers, Los Angeles, for numbering and marking runways in Maricopa county.

CAMP FACILITIES—H. R. Meadows, 2815 No. Central Ave., Phoenix, will build additional buildings and appurtenant facilities at a camp in Maricopa county. Contract for less than $50,000 awarded by U. S. District Engineer Office, Los Angeles.

TRANSMISSION LINE—Oman Smith Co., Nashville, Tenn., will construct a transmission line from the Parker Power Plant, Parker Dam power project, to the Bagdad Mine. Contract by U. S. Bureau of Reclamation.

CALIFORNIA

OIL HEATING EQUIPMENT—L. P. Sherer, 208½ Orange St., Redlands, and T. C. Pritchard, 3964 Orange St., Riverside, will furnish and install oil heating equipment and fuel oil storage system at a camp in Riverside county. The contract for less than $100,000 was awarded by the San Bernardino U. S. District Engineer Regional Office.

PLASTIC FIRM INCORPORATES—Southern California Plastic Co. has filed articles of incorporation for a new $200,000 corporation to manufacture plastics.

STEAM PLANTS—R. V. Mead, 633 La Brea Ave., Los Angeles, will construct two steam plants at an air depot in San Bernardino county. Contract for less than $100,000 awarded by U. S. District Engineer Regional Office, San Bernardino.

SEA-GOING TUGS—Standard Shipbuilding Corp., Long Beach, will build six 150-foot wooden sea-going tugs for the U. S. Maritime Commission, Washington, D.C., at a cost of $434,845.34 each.

BLACKOUT FACILITIES—H. E. Small, 419 East Camino Colegio, Santa Maria, will install blackout facilities at an air base in Santa Barbara county. The contract for less than $50,000 was awarded by the U. S. District Engineer Office, Los Angeles.

HOUSING UNITS—Federal Public Housing Authority has given Richmond Housing Authority the go-ahead signal for construction of 2,000 additional housing units.

SCHOOLS—Vallejo Housing Authority has received Federal approval for a $497,000 construction project which includes a total of 47 classrooms to be built in three schools. Each school is to be equipped with a library, office space and one room to be used for gymnasium, cafeteria and auditorium.

MARINE CORPS BARRACKS — Los Angeles Contracting Co. and O. W. Karn, 4816 West Pico Blvd., Los Angeles, have been awarded a supplemental agreement by the Bureau of Yards and Docks, Navy Department, Washington, D.C., for the construction of Marine Corps Barracks Temporary Housing at the Naval Operating Base at San Diego, to cost $4,885,300.

AIRCRAFT PLANT EXPANSION—Timm Aircraft Corp., Los Angeles, will further expand their operations to provide facilities for production of aircraft units, according to Otto W. Timm, president. The company's general offices are now located in the William M. Garland Bldg.

OIL AND GREASE STORAGE—W. J. Hunter, 660 Heliotrope Drive, Los Angeles, will construct an oil and grease storage building, inflammable and cleaning materials storage building and storm drain at an air depot in San Bernardino county. Contract by U. S. District Engineer Office, Los Angeles.

INTERIOR REPAIR SHOPS—Robert E. McKee, 4700 San Fernando Road, West, Los Angeles, will construct interior shops in airplane repair buildings at an air depot in San Bernardino county for approximately $1,000,000. Contract by U. S. District Engineer Regional Office, San Bernardino.

LOCKER ROOM—D. W. Nicholson, 1701 San Leandro Blvd., San Leandro, will build a women's locker room at the Richmond Shipyard No. 3 of the H. J. Kaiser Co., Oakland.

RECEPTION CENTER BUILDINGS—J & B Construction Co., 5572 Valley Blvd., Los Angeles, will construct buildings for a reception center in Riverside county. Contract for less than $500,000 by U. S. District Engineer Office, Los Angeles.

DETINNING PLANT—H. K. Ferguson Co., Los Angeles, has been awarded contracts by the Defense Plant Corp. for the construction of new detinning plants.

SHIPWAYS—MacDonald & Kahn Co., Ltd., Financial Center Bldg., San Francisco, will construct shipways at the Bethlehem-Alameda Shipyard in Alameda.

OIL AND PAINT STORAGE—Allied Contractors, Inc., Morro Bay, will construct an oil and paint storehouse at a camp in San Luis Obispo county. Contract for less than $50,000 by U. S. District Engineer Office, Los Angeles.

BOILERS—Beoson Bros. Supply Co., 1000 No. Alhambra Ave., Los Angeles, have been awarded a contract for the construction of boilers, to cost less than $50,000, in Lassen county.

AIR CONDITIONING AND HEATING—M. J. Brock & Sons, Inc., and Davies & Kuesder, 107 No. Larchmont Blvd., Los Angeles, will construct an air conditioning, heating and dustproofing units at an army flying school in San Bernardino county. Contract by U. S. District Engineer Office, San Bernardino.

SILICON DEPOSIT—Permanente Metals Corp., one of the Kaiser interests, has started operations at a silicon deposit in the Mariposa county foothills about 25 miles northeast of Chowchilla in Madera county. Mining operations consist of blasting the rock, loading it by power shovels on giant trucks and shipping it to the company's plant at San Jose.

CHANNEL DREDGING—Fred Franks, 260 California St., San Francisco, will dredge a channel at a harbor in Los Angeles county. Contract for less than $50,000 by U. S. Engineer, Los Angeles.

STORAGE BUILDING—Vega Airplane Co. will use a storage building to be constructed by the Defense Plant Corp. at a cost of $550,000.

OIL MIXING WORK—Oilfields Trucking Co., Bakersfield, has been awarded a contract by the State Highway Dept., Fresno, for rental of one or more traveling pug type oil mixing machines to do oil mixing work in Fresno, Kings, Madera, Tulare and Kern counties.

PERSONNEL SHELTERS—Fritz and Robert E. Ziebarth, 820 West Esther St., Long Beach, will construct personnel shelters in Los Angeles county. The contract for less than $100,000 was awarded by the U. S. District Engineer Regional Office, Los Angeles.

REFRIGERATED STOREHOUSES—N. L. Anderson, 1083 East San Jose Ave., Burbank, has been awarded a $50,000 contract by the U. S. District Engineer Office, Los Angeles, for the construction of refrigerated storehouses in Los Angeles county.

WAREHOUSE—H. W. Baum, 232 So. Van Ness Ave., Los Angeles, will build a warehouse at the Lockheed Aircraft Corp. to cost approximately $575,000. The Defense Plant Corp. awarded the contract.

HOUSING UNITS—Henry J. Kaiser Co. has been allotted $13,000,000 for the construction of 6,000 housing units and 1,500 war apartments by the U. S. Maritime Commission.

DESTROYER BASE BUILDINGS—I. C. Curry and F. E. Young, San Diego, have been awarded a contract at $2,856,000 by the U. S. Navy, Bureau of Yards and Docks, Washington, D.C., for buildings which are being erected at the Destroyer Base, San Diego.

INSTALLING SEPARATOR—Mica Gem Mining and Milling Corp. are installing a 100-ton mill for the separation of mica from feldspar and silica at their deposit located four miles east of Jacumba in San Diego county.

NAVAL FACILITIES—Duncanson-Harrelson Co., 1404 DeYoung Bldg., San Francisco, have been awarded a $1,641,500 supplemental contract by the Bureau of Yards & Docks, Navy Dept., Washington, D.C., for additional naval facilities at Port Chicago.

DEPOT ADDITION—G. P. W. Jensen & Sons, Inc., 320 Market St., San Francisco, will build an addition to the bus depot of the Greyhound Lines at Fifth and Mission streets in San Francisco.

RAILROAD HOLDING YARD—Spencer B. Lane, 845 Pine St., San Francisco, is to construct a railroad holding yard in the San Francisco Bay Area for the U. S. Army Engineer Office, San Francisco.

TANKERS—The Bechtel Marin Shipyard, Sausalito, has been awarded a contract by the U. S. Maritime Commission for the construction of 22 tankers.

COLORADO

CANTONMENTS—Newstrom-Davis & Co., 2000 West Eighth Ave., Denver, will build 13 miscellaneous cantonment buildings at an air base in Pueblo county. Contract by U. S. District Engineer Office, Denver.

AIR FORCE INSTALLATION—George W. Condon Co., Ed H. Honnen Construction Co. and Peter Kiewit Sons Co. have been awarded a negotiated contract by the War Department for the construction of an Air Force installation at Colorado Springs to cost in excess of $3,000,000.

GENERAL CONSTRUCTION—Harold F. Higgins, 1367 Jersey St., Denver, has been awarded a contract by U. S. District Engineer Office, Denver, for construction of miscellaneous buildings in Eagle county. Cost to be less than $50,000.

ARMY CAMP FACILITIES—Edward H. Honnen Construction Co., Colorado Springs; Peter Kiewit & Sons, Omaha, Neb. and George W. Condon Co. have been awarded contracts by the Denver U. S. District Engineer Office in excess of $5,000,000 for the construction of 300 cantonment buildings, electrical distribution system, gasoline storage building and roads for ground forces at an army camp near Colorado Springs.

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THE WEST ON ITS WAY

SPRINKLER SYSTEM—Fire Protection Co., Chicago, Ill., will install an automatic sprinkler system in Eagle county. Contract for less than $50,000 by U. S. District Engineer Office, Denver.

IDAHO

MILITARY BUILDINGS—J. O. Jordan & Son, Boise, will construct buildings at a military site in Ada county. The $100,000 contract by U. S. Army Engineers, Portland, Ore.

LIGHTING SYSTEM—City Electric Co., Pendleton, Ore., will install a distribution and street lighting system at Pocatello at a cost of $108,623. Contract by the Portland office, U. S. District Engineers.

GRADING AND PAVING—Jacobsen-Jensen Co. and Dan J. Cavanagh, Porland, Ore., have been awarded a contract by the Portland office of the U. S. Army Engineers for grading and paving in Ada county, Idaho. Cost will be in excess of $400,000.

FUELING SYSTEM—Central California Construction Co., Inc., 230 California St., San Francisco, Calif., will construct a fueling system in Power county, which will cost in excess of $50,000. Contract by U. S. Army Engineer Office.

RUNWAY BASES—Relyea & Plastino, Boise, are laying the base surfacing for runways at a Lewiston airport.

FRAME BUILDINGS—J. O. Jordan & Son, Boise, will erect some frame buildings and move others at Boise. Contract in the amount of $107,646 by U. S. District Engineers Office, Portland.

PAVING WORK—Morrison-Knudsen Co., Boise, and Triangle Construction Co., Pocatello, have been awarded a $780,963 contract for paving and appurtenant work in the Pocatello area by the Portland U. S. Engineers office.

MONTANA

TIMBER TRACT SOLD—The J. Neils Lumber Co., Libby, has purchased a tract of timber on Barron creek from the Kootenai national forest for about $150,000. This stand, to be logged at once, has a large quantity of fir and larch and Englemann spruce.

INCINERATOR AND FRAME BLDGS.—Victory Construction Co., Great Falls, will construct temporary frame buildings and incinerator at a military site in Cascade county which will cost between $100,000 and $500,000. Contract by U. S. Army Engineers, Fort Peck.

MILITARY ROADS—Frank J. Haas, 512 Ninth, N.W., Great Falls, has been awarded a $50,000 contract by the U. S. Army Engineers, Fort Peck, for construction of roads on a military site in Glacier county.

OIL STORAGE SYSTEM—Central California Construction Co., Inc., 230 California St., San Francisco, will construct a gasoline fueling and oil storage system at a military site in Cascade county to cost between $100,000 and $500,000. Contract by U. S. Army Engineers, Fort Peck.

STORAGE AND LOADING—John Sletten, Great Falls, has been awarded a $50,000 contract by the war department for the construction of storage and loading facilities in Glacier county.

NEVADA

AIR CONDITIONING AND HEATING—W. C. Bradshaw, 912 Echo Ave., Fresno, Calif., has been awarded a contract by the U. S. District Engineer Regional Office, San Bernardino, in an amount less than $50,000 for air conditioning, heating and dustproofing link trainer buildings at a gunnery school in Clark county.

MOVING TARGET RANGES—General Construction Co. and J. Walter Johnson, Los Angeles, will construct sheds at moving target ranges at an air corps flexible gunnery school in Clark county. Contract for less than $50,000 by U. S. District Engineer Office, Los Angeles.

ELECTRIC DISTRIBUTION SYSTEM—R. R. Jones Electric Co., 925 Meridian Ave., So. Pasadena, will construct an electric distribution system at a radio range enclosure in Nye county. Contract for less than $50,000 awarded by U. S. Engineers, Los Angeles.

GRADING AND SURFACING—Hunt & Frandsen, Reno, will grade and surface an area in Elko county, five miles west of Owyhee. The $306,024.88 contract awarded by the Nevada State Highway Dept., Carson City.

FRAME BUILDINGS—J. Walter Johnson, Los Angeles, has been awarded a contract by the U. S. Engineer Office, Los Angeles, for the construction of temporary frame buildings in Clark county to cost between $100,000 and $500,000.

NEW MEXICO

BUILDINGS AND MAGAZINES—E. S. McKittrick Co., Inc., 7839 Santa Fe Ave., Huntington Park, Calif., will construct 28 buildings and six ammunition magazines at a fort in McKinley county. The contract for less than $500,000 was awarded by the U. S. District Engineer Office, Albuquerque.

BOMB TRAINER BUILDING—K. L. House Construction Co., Albuquerque, has been awarded a contract for $150,000 by the U. S. District Engineer Office, Albuquerque, for construction of a bomb trainer building with all inside utilities at an airfield in Bernalillo county.

TEMPORARY BUILDINGS—Gerald More, Houston, Tex., will construct 163 temporary buildings at a military site in Curry county. Contract by U. S. Army Engineers, Albuquerque.

FLYING SCHOOL FACILITIES—Pecos Valley Co., Roswell, will construct a civilian mess hall, laundry, steam plant and administration building at an army flying school in Chaves county. Contract by U. S. District Engineer Office, Albuquerque.

ARMY BUILDINGS—M. M. Sundt Construction Co., 440 So. Park Ave., Tucson, will construct a group of theater of operations type buildings together with utilities at an army camp in San Miguel county to cost less than $5,000,000.

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THE WEST ON ITS WAY

ELECTRICAL DISTRIBUTION SYSTEM—L. W. Irick Electric Co., Gallup, was awarded a contract by the U. S. District Engineer Office, Albuquerque, in an amount less than $50,000 for construction of an electrical distribution system in McKinley county.

STEAM PLANT—K. L. House Construction Co., Albuquerque, will construct a laundry building and steam plant to serve approximately 10,000 people at an air field in Luna county. Contract for less than $200,000 by U. S. District Engineer, Albuquerque.

OREGON

WHEAT TO ALCOHOL—Grain Products, Inc., announced the establishment of a grain alcohol plant in Arlington which should result in the use of 2,400,000 bushels of Northeast Oregon wheat. Also tied in with the synthetic rubber program, the plant will produce 20,000 gallons of industrial alcohol daily.

FRAME BUILDINGS—Lovering Construction Co., St. Paul, will build frame buildings near Corvallis at a cost of $885,050. Contract by U. S. Engineers, Portland district office.

MINING EQUIPMENT—George De Martini and Associates, 1234 Folsom St., San Francisco, are planning to install a 500-ton milling plant and proportionate mining equipment at their manganese property in Jackson county east of Medford.

MILITARY BUILDING—Frank Lohse, Pendleton, has been awarded a contract by the U. S. Army Engineers, Portland, for the construction of a building at a military site in Umatilla county.

CONCRETE PIERS—S. S. Montague, Portland, will construct concrete piers and floating fender near Celilo Falls. Contract for $47,065 by U. S. Engineers, Portland district office.

AIRPORT—Newport Construction Co., 7031 N.E. Halsey St., Portland, will construct an airport at Troutdale at an approximate cost of $197,207. Contract by CAA, Boeing Field, Seattle, Wash.

SUGAR PLANT—Amalgamated Sugar Co. plant in Nyssa started production of sugar early in October. When stepped up to full capacity, nearly three-quarters of a million pounds of sugar will be produced every day.

SPRINKLER SYSTEM — Rushlight Automatic Sprinkler Co., Portland, will install an automatic sprinkler system at a military site in Jackson county. Contract by U. S. Army Engineers, Portland.

RECEIVING STATION—The Austin Co., Dexter Horton Bldg., Seattle, has started construction of a receiving station at 3235 N.W. Yeon Ave., Portland, for the U. S. Navy, Bureau of Yards & Docks, to cost $500,000.

WOOD CULVERTS—Smith Wood Products Co., Coquille, has shipped its first carload of all-wood culverts to a subsidiary of the Armco Co., holder of patents on the new product.

DORMITORIES—Geo. H. Buckler, Lewis Bldg., Portland, has started construction on five one-story dormitories east of Swan Island to cost $300,000. These buildings are to house approximately 1200 men.

ROADS AND UTILITIES—W. C. Smith, Board of Trade Bldg., and Kuckenberg Construction Co., 11104 N.E. Holman, Portland, have been awarded a contract by the U. S. Army Engineers, Portland, for construction of buildings, roads and utilities in Jefferson county. The amount of the contract is between $600,000 and $750,000.

FRAME BUILDINGS—Tri-State Construction Co., Portland, will erect frame buildings at Salem at a cost of $378,092. Contract by the Portland U. S. Engineers Office.

WHARF—Gilpin Construction Co., 5500 N.W. Front St., Portland, will construct a wharf at a military site in Clatsop county. Contract for less than $50,000 by U. S. Army Engineers, Portland.

UTAH

PIPE FACTORY—Ogden Concrete Pipe Co. has been granted a permit to build a factory on Wall Avenue between Nineteenth and Twentieth streets at an estimated cost of $12,000.

STORAGE AND REPAIR—Paul Paulsen Co., 55½ West First South, Salt Lake City, will construct an engine storage and repair building and appurtenant facilities at an air depot in Weber county. Contract in excess of $100,000 by U. S. District Engineer Office.

AUTHORIZE GASOLINE PLANT—Utah Oil Refining Co., Utah Oil Bldg., Salt Lake City, has been granted permission by the War Production Board to construct an aviation gasoline plant on the site of their refinery.

HOUSING AND FACILITIES—W. E. Ryberg Co., Salt Lake City, and Strong & Grant, Springville, have a joint contract for construction of the Columbia Housing project near Provo, which will cost approximately $3,000,000.

FIRE ALARM SYSTEM—American District Telegraph Co., Walker Bank Bldg., Salt Lake City, will install an automatic fire alarm system at an army camp in Salt Lake county. Contract by U. S. District Engineer Office, Salt Lake City.

DORMITORY UNITS—James I. Barnes Construction Co., 1119 Montana Ave., Santa Monica, has been awarded a negotiated contract by the U. S. District Engineer Office, Salt Lake City, in an amount of less than $500,000 for the construction of 20 civilian housing dormitory units at an army depot in Weber county.

CLOSED SHED—Johnson and Leck, 227 Eccles Bldg., Ogden, will build a closed shed at a Quartermaster Depot in Weber county. The contract for less than $50,000 was awarded by the U. S. District Engineer Office, Salt Lake City.

CONCRETE FLOORS—Harrison and Dorman, 13 South Four West, Salt Lake City, were awarded a negotiated contract for less than $50,000 by U. S. District Engineer Office, Salt Lake City, for construction of concrete floors for three warehouses and hangar at an army air base in Tooele county.

INSULATING JOB—Harrison and Dorman, 13 South Four West, Salt Lake City, will insulate buildings at an army air base in Tooele county. Contract for less than $50,000 by U. S. District Engineer Office.

HOSPITAL BUILDINGS—Harry Hart and R. W. Blanchard, Salt Lake City, will construct 25 hospital buildings together with water distribution and sewer system at an army air base in Tooele county. The contract in excess of $500,000 was awarded by the U. S. Engineer Office, Salt Lake City.

AUTOMATIC SPRINKLERS—Viking Automatic Sprinkler Co., 149 West Second South, Salt Lake City, was awarded a negotiated contract by the U. S. District Engineer Office, Salt Lake City, for construction of an automatic sprinkler system at a fort in Salt Lake county.

HANGARS AND BOILER HOUSE—Johnson & Leck Co., 227 Eccles Bldg., Ogden, will construct two AC hangars and a boiler house in Weber county. Contract for less than $500,000 by U. S. District Engineers, Salt Lake City.

STORAGE BUILDINGS—Chytraus Construction Co., Salt Lake City, will construct concrete and steel storage buildings at a military site in Weber county. Contract for less than $50,000 by U. S. Army Engineers, Salt Lake City.

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THE WEST ON ITS WAY

WASHINGTON

MILITARY HOUSING—Bonnell Construction Co., 760½ Commerce Ave., Seattle, will construct houses at a military site in Pierce county, to cost between $50,000 and $100,000. Contract by U. S. Army Engineers, Seattle.

NEW HOMES—J. W. Bailey, 228 Ninth Ave., No., Seattle, has been awarded a contract by the Northwestern Development Co. of Tacoma for the construction of 164 homes in the Highland Addition, Tacoma, at an approximate cost of $575,000.

HOSPITAL ADDITIONS—Clark General Hospital has been granted $319,370 for additions to their hospital, according to Alan Bancroft, business manager. Donald R. Stewart and associates have been working on the plans which include a new surgery, kitchen, dining room.

SEA-GOING TUGS—Pre-Fabricated Ships, Inc., Smith Tower, Seattle, has been awarded a contract by the U. S. Maritime Commission, Washington, D.C., for construction of six wooden sea-going tugs to cost $425,000 each.

REPAIR SHOP—C. M. Ludberg Co., Spokane, will construct an office building and repair shop in Spokane county. Contract for less than $50,000 awarded by U. S. Army Engineers, Seattle.

FIRE STATION—O. F. Larson & Son, Pacific Savings Bldg., Tacoma, have been awarded a $54,254 contract by the Public Buildings Administration, FWA, Washington, D.C., for construction of a fire station in Bremerton.

CARBIDE PLANT—Roy T. Earley Co. has a contract with the Defense Plant Corp. for the erection of a half-million dollar plant on Hylebos waterway.

BUILDING BARGES—Anacortes Ship Ways, Inc., will build six 274-foot barges at Anacortes. They have been given a contract by the U. S. Maritime Commission allowing $538,000 per barge.

HOUSING—O. R. Larson, Tacoma, has been awarded a contract by the U. S. Army Engineers, Seattle, for the construction of houses in Pierce county to cost between $50,000 and $100,000.

STOREHOUSE—Sam Bergesen, Wick and Dahlgren, Tacoma, will construct a storehouse in Snohomish county at a cost of less than $50,000. Contract by U. S. Army Engineers, Seattle.

SUPPLY UNIT—Sound Construction and Engineering Co., Seattle, have been awarded a contract by the U. S. Engineer Office, Seattle, for the construction of a supply unit to cost between $500,000 and $1,000,000.

FIRE ALARM SYSTEM—American District Telephone Co., 316 Douglas Bldg., Seattle, will construct a fire alarm system at a military site in King county to cost less than $50,000. Contract by U. S. Army Engineers.

FIVE SEA TUGS—Northwestern Shipbuilding Co., South Bellingham, will construct five sea-going tugs for the United States Army.

OPPORTUNITY SECTION . . .

Priorities regulations have made it practically impossible to secure new machinery for industrial operations unless a plant is doing 100 per cent work on war projects. Even then, long delays are in prospect. The government is urging full use of existing machinery. Listed here are "machinery opportunities" immediately available here on the Pacific Coast.

SPECIAL MOTORS

MULTI-SPEED RECONDITIONED

1/3 - 1/6 HP 6 & 12 pole—440 Volt—3 phase, Type K, G.E. Constant Torque.
7½ - 15 HP—4 & 8 pole—440 Volt—3 phase, Type QSX Fairbanks Morse Ball Bearing Constant Torque. NEW.
30 HP Constant HP 6-8-12-16 pole Type CS West. with Cutler Hammer pole changer.

HIGH SLIP—NEW

1 HP 1800 RPM—220/440 Volt, Type KR Ball Bearing Sterling 7 to 11% Slip.

EXPLOSION PROOF—NEW

1/2 HP 1800 RPM, 220/440 Volt Master Ball Bearing.

HIGH TORQUE—NEW

30 HP 1200—220/440 Class II Line Start Westinghouse sealed sleeve bearings.

RECONDITIONED HIGH TORQUE

15 HP 1800—220/440 Fairbanks Morse Type HJ
50 HP 1800—220/440 Type HJ Fairbanks Morse Ball Bearing Line Start
WITH DICKSON AUTOMATIC CLUTCH—RECONDITIONED.
15 HP 1800—220/440 Ball Bearing Sterling
25 HP 900—220/440 U. S. Ball Bearing

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2—250 H.P. Westinghouse, Type CS, 290 RPM, 2200 volts.
1—200 H.P. G.E. Type I, 600 RPM, 440 volts.
1—200 H.P., G.E. 1800 RPM, 440 volt motor.
1—150 H.P. Westinghouse, Type CS, 1800 RPM, 440 volts.
1—100 H.P., Slip Ring, G.E., 720 RPM, 440 volts.
1—62½-Ft. 25½-inch Double Leather Belt.
1—60 H.P. G.E. Type I, 1800 RPM, 440 volts.
1— 50 H.P. Vertical Fairbanks Morse, 1200 RPM, 220 volts, solid shaft.
1—35 H.P. Crocker Wheeler, 1200 RPM, 220 volts.
1—10 to 30 H.P. Slip Ring, Westinghouse, Type MW, 860 RPM, 440 volts.

GENERATORS, BLOWERS, WATER PUMPS

1—600 Amp, 7500 volt, Westinghouse Type F3 oil circuit breaker.
1—300 H.P. Triumph Water Wheel with governor, 50 ft. head.
1—200 KW, Westinghouse Alternating Current Generator, 900 RPM, 440 volts, 60 cycle, 3 phase
1—150 H.P. Fairbanks Morse, Type B, 720 RPM, 440 volts.
1—150 H.P. Westinghouse Type CS, 720 RPM, 2200 volts.
1—No. 70 ILG Blower, 17,430 CFM, direct to 6 H.P. 340 RPM, 3 phase motor.
2— 75 KVA Transformers, G.E. Type H, 6600 to 120/240/480 volts, 60 cycle.
1—60 H.P. Byron Jackson Turbine pump, 1200 GPM at 140 ft. head.
1— 50 H.P. Single Drum Mine Hoist.
1—10 K.W. Direct Current, 110 volt Kohler automatic light plant.

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YOURS FOR THE ASKING

1133

• ENGINE OVERHAUL—Equipment and procedure for a new, improved and fast method of degreasing and decarbonizing aircraft and other engine parts for overhaul is described in a 16-page booklet entitled "Turco Procedure for Aircraft Engine Overhaul." Among processes and equipment described are specially devised hot tank chemicals and methods for cleaning steel, aluminum and magnesium parts, the air and solvent spray table, the chemical vapor cleaner, the decarbonization of pistons and other small parts and the degreasing and cleaning of oil temperature regulators. Illustrated with diagrams and photographs. Turco Products, Inc., 6135 So. Central Ave., Los Angeles, Calif.

1134

• PLYWOOD DATA—Technical data on plywood, needed by engineers and architects, are presented in a looseleaf handbook. Deals with the application of the flat panels. Contains three sections: Physical properties of fir plywood, designing with plywood and prevention of condensation in walls. A table of approximate methods for calculating the strength of plywood is included along with other tables, charts and diagrams relating to strength properties under tension, compression, flexure and shear. Douglas Fir Plywood Association, Tacoma Building, Tacoma, Wash.

1135

• TIME SAVERS—Timesaving adaptations of low-cost machines to all branches of the armament program are shown photographically and described in a booklet, recently published. Actual shop photographs show the scope of the penetration of the new-type, low-cost drill presses, grinders, cut-off machines, abrasive finishing machines, circular, scroll and band saws. Delta Mfg. Co., 600 East Vienna Ave., Milwaukee, Wisc.

1136

• WELD INSPECTION CHART — Provides welding inspectors and others concerned with weld production a simple and helpful aid for use in inspecting welds. Presents graphically the different types of welds obtained when the work is done normally, with normal current, voltage and speed, as compared with those obtained when these factors are not normal. Included is a table indicating the burn-off of the electrode, the penetration of fusion, the appearance of the bead and the sound of the arc with each value of current, voltage and speed of welding. The Lincoln Electric Co., 12818 Coit Road, Cleveland, Ohio.

1137

• GAR-BRO PRODUCTS — Catalog No. 70 describes equipment developed during the past twenty years, which has been designed to meet the increasing demands for improved concrete placing and material handling equipment. Lists over 300 items, all field-tested under actual job conditions. Contains numerable illustrations and specifications. Garlinghouse Brothers, 2416 East 16th St., Los Angeles, Calif.

1138

• CUTTING TOOLS—A convenient six by nine catalog, covering a complete line of cutting tools, with illustrations and lists of sizes of standard tools. Included are a number of useful tables covering standard items such as keyways for cutters, dimensions of Morse and B & S taper shanks, weight per inch of round bars. Genesee Tool Co., Fenton, Mich.

1139

• LIGHTING—Sixteen-page bulletin entitled "Lighting for War Industry." Contains design information to determine required illumination intensity as a function of the brightness of the task. Tables covering the reflection factors of various materials, maintenance cost and economic comparisons are given. Included is a set of charts designed to help in the calculation of illumination at a point. Holophane Company, Inc., 1201 Bryant St., San Francisco, Calif.

1140

• LIFT TRUCKS—"The Inside Story" is a basic lift truck story, explaining what a lift truck really is, what performance can be expected of it, and setting up logical yardsticks of comparison enabling purchasers to determine whether the equipment they are considering is most suitable for their particular handling problems. Divided into six chapters: Design, Frame Construction, Lifting and Stacking Mechanism, Power Plant and Travel Mechanism, Operating and Control Mechanism and Servicing and Maintenance Features. Towmotor Co., 123 East 152nd St., Cleveland, Ohio.

You owe it to yourself to keep posted—only the efficient business survives under the strain and pressure of the war effort. Literature listed in these columns may be just the answer to your need for greater production, substitute materials or knowledge of how to care for your equipment. Just drop a note to Western Industry, 503 Market St., San Francisco, and copies will be forwarded to you. If you do not use business letterheads, please name your company affiliation.

1141

• RUST REMOVAL—Manual reviews effective, safe methods for speedily, economically removing limescale, rust and similar deposits from over 59 different types of water-cooled or water-circulating equipment to maintain normal heat transfer capacity or effect other results essential to greater operating efficiency. Among the units discussed in this connection are metal washing machines, cutting and quenching oil cooling coils, spot welding machines, blast furnace cooling coils, diesel cooling systems, lubricating oil and jacket-water coolers. Oakite Products, Inc., 1001 East First St., Los Angeles, Calif.

1142

• SELF-LOCKING NUTS—A wall chart, explaining the uses of various types of self-locking nuts, has been made available. Center of chart is devoted to an illustrated description of the basic principle by which a self-locking action is obtained; following are illustrations of some of the advantages to be obtained by the use of the nuts; and finally, there are cross-section drawings showing the method of application of the nine types most generally used, with corresponding photographs. Elastic Stop Nut Corp., 2332 Vauxhall Road, Union, N.J.

1143

• WELDING LENS—Known as the Burt-Weld Lens, especially developed for aluminum welders to eliminate glare of hydrogen torch and burning flux. However, the welding rod and working puddle of aluminum remain clearly visible. Bulletin describes the product and includes a discussion on the scientific principle involved. B. F. McDonald Co., 1248 So. Hope St., Los Angeles, Calif.

1144

• MOUNTED WHEELS—Information on the proper application of mounted wheels is given in a 60-page booklet, illustrated with exact size color illustrations of all types of mounted wheels and a wide array of accessories for use with high speed portable equipment. Contents of the booklet include a selection guide. Chicago Wheel & Mfg. Co., 1101 West Monroe St., Chicago, Ill.

1145

• STEEL FITTINGS—Descriptions of 166 different kinds of forged steel fittings are given in Bulletin A-3. An unusually complete reference book which stresses the advantages of forged steel fittings in high-pressure, high temperature service. Book is divided into three sections. Section 1 shows 33 pictures of forged steel screwed fittings along with descriptive information as to type of unit, use, pressure ratings, dimensions and list prices of each item as furnished in carbon steel, carbon-molybdenum steel, chromium-molybdenum steel or stainless steel. Section 2 treats socket welding fittings in the same manner. Section 3 consists of engineering data vital to users of fittings. Watson-Stillman Co., Roselle, New Jersey.

1146

• PLASTIC REPLACEMENTS—Of necessity, plastics are taking the place of many critical materials in war production and defense business. In a folder entitled "Meet the New Soldier," information is given about the advantages of plastic. Included is a chart showing its general properties. R. D. Werner Co., Inc., 380 Second Ave., New York, N. Y.

1147

• SALT BATH FURNACE—Four-page folder discusses the various types of internally heated salt bath furnaces and pots; hints on their selection; avoiding super-heating and rapid decomposition of carburizing salts; effect of pot shapes on the flow of heated salt. Comments on the furnaces and pots required for hardening of "Moly" and high speed steels are included. Upton Electric Furnace Division, 7450 Melville Ave., Detroit, Mich.

1148

• WRAPPING MACHINES—A wrapping machine procurement service for manufacturers who need machines for war production as well as essential civilian needs. Package Machinery Co., Springfield, Mass.

1149

• MANGANESE STEEL—Bulletin No. 642-C illustrates the various crusher, grinding mill and pulverizer parts made from manganese steel. Also shown is the apparatus employed in the research laboratory. American Manganese Steel Division, The American Brake Shoe & Foundry Co., 389 East 14th St., Chicago Heights, Ill.

1150

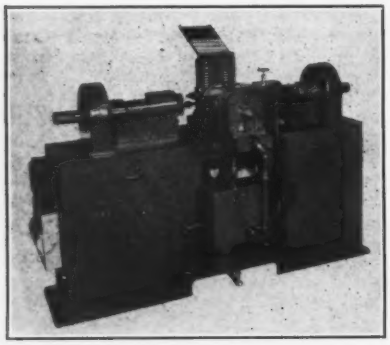
• PUMP CATALOG — General information about the rotary pumps manufactured by Blackmer, with description and explanation of the use of each. Also included are pages showing their application in various industries. Blackmer Pump Co., Grand Rapids, Mich.

THE SHOWCASE

• SERVICE LIGHT—Portable fluorescent service light, adjustable from 30 inches to seven feet and designed to project light into inaccessible places. First developed for servicing plants at night, but more recently has been adopted by industrial plants. Upward, downward, horizontally, vertically or in any angle of 180-degree arc, the unit is adjustable without the use of tools and will illuminate any darkened area with a long source

of cool comfortable fluorescent light which permits close working arrangements and eliminates shadows. A well-balanced cast iron base makes the light practically impossible to upset, according to the manufacturer, Lumidor Mfg. Co., 3120 East Pico Blvd., Los Angeles, Calif.

• AUTOMATIC FEED — An automatic chute feed has been added to a two-spindle profiling machine which is used for burring, chamfering, facing, threading, centering, and reaming. The attachment is being used for feeding brass and copper primer tubes for boring and tapping operations



on both ends at the same time. Production from these machines has been increased as much as 30 per cent, according to the manufacturer, Pines Engineering Co., Inc., Aurora, Ill.

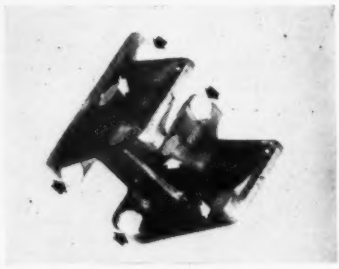
• TRI-SQUARE—Of one-piece solid construction, it is suited to extreme precision measurement wherever 90 degree angles are involved. Held to limits of .00002 inches base and side, Tri-Square is available in two sizes: Four inches in height with a 5/8" wide standing base, and six inches with a one-inch wide base. Hardened, ground and lapped from alloy tool steel, final manufacturing operations being done in a special temperature control room to assure maximum gaging accuracy. Basic gage for inspection departments, rounding out any set of inspection tools. Used in laying out and checking right angle work and square surfaces, the checking of V's, straight flat edges and parallelism of cylindrical surfaces. Jansson Gage Co., 19208 Glendale, Detroit, Mich.

• COMBINATION TRUCK—Performs the separate functions of a load carrier, a crane and a tractor as well as combining the typical operations of all three. Truck operates with two-wheel drive and four-wheel steer. Frame is made of heavy section formed plates welded into a rugged one-piece structural unit embodying the control dash. Boom is of special design, of heavy formed channel members rigidly reinforced with tie rods, lattice bars and gusset plates and slews around a 3½ inch diameter alloy steel pillar. Thrust load is taken on over-

size ball bearings at the base of column; radial loads on roller bearings at both top and bottom. Elwell-Parker Electric Co., 4205 St. Clair Ave., Cleveland, Ohio.

• ANGLE MACHINING PACKAGE—Designed to reduce set-up time in production of compound angles. Package consists of three parts: Vise with improved locking control; grinding wheel angle dressing attachment; unique swivel clamp for holding odd-shaped work pieces. Vise is of all-steel construction, precision built, with hardened and ground steel jaws. The grinding wheel which fits into the vise eliminates the need for a separate angle wheel dresser. F & H Mfg. Co., 6024 Ellery St., Detroit, Mich.

• MASKING—Kum-Kleen stickers, which have a self-adhesive backing, can be used for masking when the mask area is small.

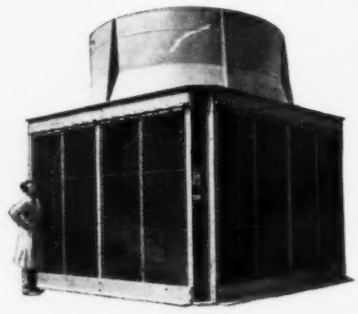


They are applied quickly without moistening to metal, glass, plastic, wood or any smooth surface. After the operation is completed, they can be peeled off easily without scraping or tearing. The Avery Adhesives, 451 East Third St., Los Angeles, Calif.

• ADJUSTABLE WRENCH—Manufactured in four sizes in both nut and pipe wrench styles. To tighten a given nut, the handle band is zipped, and the jaws adjust

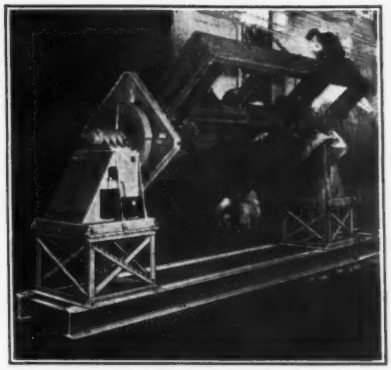
themselves automatically to a vise-like grip on nut. Zipping action is accomplished by a spiral shaft inside the handle, which shaft, in turn is encased by a protecting dust covering brass housing which covers the grooves on the spiral shaft while the handle is operated. The spiral shaft meshes with a worm gear inside the wrench head by means of bevel gears which operates the slidable jaws. Techtmann Industries, Inc., 828 No. Broadway, Milwaukee, Wis.

• COOLING UNIT—Resembles a tower, extends 14 feet into the air and measures about 12 feet square around the base. The trade name "Quad" indicates the arrangement of the unit which is formed into a four sided assembly, the sides of which are com-



prised of heat transfer surfaces for water, oil or gas cooling and for steam or vapor condensing as required. A high capacity induced draft fan is mounted horizontally at the top of the tower drawing air through the heat transfer elements and discharging it upward through an aero-dynamically designed discharge stack. Young Radiator Co., Racine, Wis.

• SAFETY CLOTHING—Made of chrome-tanned cowhide, which weighs approximately five ounces per square foot. Fire-resisting duck used for backing weighs approximately 12 ounces per square yard. Garments equipped with durable snap fasteners, easy to open and close. Closely spaced rivets reinforce the pants and overalls from inseam of leg to the fly, strengthening first area in which all trousers usually give way; also to prevent sparks from rolling through, fly has ample overlap. Designed by a welder, the suit is made of as few pieces of leather as possible, and is constructed to offer maximum protection, fit comfortably and give long efficient wear, according to the manufacturer, American Optical Co., Southbridge, Mass.



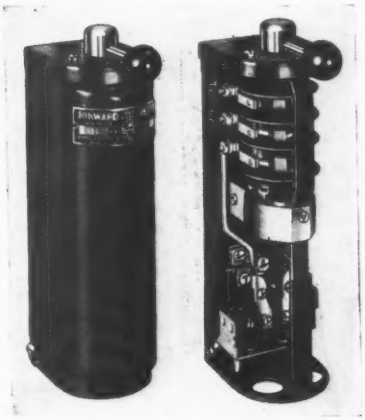
• POSITION WELDING — A rotating welding fixture consisting of a head-stock and tail-stock combination for position-welding large cumbersome objects. The head-stock table top is fixed in a vertical position with its spindle shaft turning in double roller bearings. This unit is provided with power for rotating through a pinion in mesh with table top ring gear. Driving motor and self-locking gear reduction are completely enclosed within main frame. The tail-stock is essentially of the same design and construction as head-stock, but is not provided with power and functions as an outboard holding fixture. Distance between two stocks is made variable to accommodate objects of different lengths by mounting tail-stock on heavy I-beams and moving it to accommodate objects to be welded. Ransome Concrete Machinery Co., Dunellen, New Jersey.

• WELD SPATTER—Acme Quality Industrial Finish Flash-Off No. 99 is designed to eliminate weld spatters and the time cost of removing them ,plus giving a stronger ,smoother weld. The mechanic simply brushes, sprays, or wipes on Industrial Finish Flash-Off along the edges of the metal surfaces to be joined by the weld. Then when the welding is done, metal chips bounce or fall off instead of adhering to areas adpacent to the seam.

An additional feature of the new product is its cleansing effect to the surface to which applied. It prevents pitting on galvanized or ungalvanized metal surfaces and permits immediate application of paint without cleaning operations other than wiping off.

Acme White Lead & Color Works, Dept. FS-18, Detroit, Mich.

• DRUM CONTROLLER—Has a built-in Polyphase Thermal Overload unit. In case of an overload in any phase, power is disconnected independently of the reversing part of the controller, and an overload is signalled by a red indicator which projects



through the top of the controller housing. The overload unit is of solder-pot type and is trip-free. It cannot be reset and power reconnected until the drum handle has been returned to the OFF position. Furnas Electric Co., 300 McKee St., Batavia, Ill.

• TACK RAG—Eliminates the use of solvents and saves time in cleaning dust and over-spray prior to painting. The O-U-Tack is flexible as to tackiness and does not dry out in storage. Particularly applicable when preparing aircraft skins for synthetic enamel, as it completely removes metal dust and other minute particles developed in drilling and riveting, according to the manufacturer, Robinson Specialty Manufacturing Co., 816 West Fifth St., Los Angeles, Calif.

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RUT NO. 2

1 THE "HASH-ON-MONDAY" METHOD

A sure-fire recipe for salesman's stasis and dealer indigestion. Just take some left-over art work and make a "blow-up" . . which is just about as substantial as it sounds; or a "three panel screen" . . which is usually only a smoke-screen for lack of idea—or lack of effort.

2 THE "KATE-AND-DUPLICATE" METHOD

A certain symptom of mental bookworm, expressed by either "Let's do the same thing we did last year" or "—the same thing as John Q. Competitor—only with a little different angle." Angle is right—obtuse angle!

RUT NO. 3

3 THE "PINOCHLE PARTNER" METHOD

Or substitute bridge, or golf or fishing. Or make it the Big Chief's brother-in-law. It makes no difference, if you just forget to ask whether he knows anything about advertising, sales or dealers—or if he can contribute a single solitary sound idea toward the successful merchandising of your campaign.

RUT NO. 4

4 THE "ENGLISH SPARROW" METHOD

The payoff is in the sound-off. "Cheap! Cheap!" The cheaper the weaker—but that never bothers a "bid-collector"—HE should worry about such minor things as SALES!

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Emson-Freeman Co., Inc., Lithographers, said this so well we are repeating it with their permission.

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